



GRADUATE

catalog

BULLETIN OF MEMPHIS STATE UNIVERSITY
1990-91

Graduate Catalog Edition

Volume LXXIX, Number 4, July 1990

The course offerings and requirements of Memphis State University are continually under examination and revision. This catalog presents the offerings and requirements in effect at the time of publication, but is no guarantee that they will not be changed or revoked. However, adequate and reasonable notice will be given to students affected by any changes. This catalog is not intended to state contractual terms and does not constitute a contract between the student and the institution.

Memphis State University reserves the right to make changes as required in course offerings, curricula, academic policies, and other rules and regulations affecting students to be effective whenever determined by the institution. These changes will govern current and formerly enrolled students. Enrollment of all students is subject to these conditions.

Memphis State University provides the opportunity for students to increase their knowledge by providing programs of instruction in the various disciplines and programs through faculty who, in the opinion of the institution, are qualified for teaching at the college level. The acquisition and retention of knowledge by any student is, however, contingent upon the student's desire and ability to learn and his or her application of appropriate study techniques to any course or program. Thus, Memphis State University must necessarily limit representation of student preparedness in any field of study to that competency demonstrated at that specific point in time at which appropriate academic measurements were taken to certify course or program completion.

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GRADUATE catalog

BULLETIN OF
MEMPHIS STATE
UNIVERSITY
1990-91

Thomas G. Carpenter, Ph.D., President
Cecil C. Humphreys, Ph.D., President Emeritus

The Seventy-ninth session will
open August 22, 1990

Memphis State University offers equal educational opportunity to all persons without regard to race, religion, sex, creed, color, national origin, or handicap. The University does not discriminate on these bases in the recruitment and admission of students, the recruitment and employment of faculty and staff, and the operation of any of its programs and activities, as specified by federal laws and regulations. The designated coordinator for University compliance with Section 504 of the Rehabilitation Act of 1973 is the Vice President for Student Educational Services.

DIRECTORY FOR CORRESPONDENCE

Inquiries will receive attention if addressed to the administrative offices below at Memphis State University, Memphis, Tennessee 38152.

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Assistantships and Fellowships Chair of appropriate department or director of graduate studies of appropriate department

Degree Requirements Dean of the Graduate School Chair of appropriate department

Entrance Examinations Director of Testing

Financial and Business Affairs Director of Finance

Financial Aid Director of Student Aid

Graduate Studies Chair of appropriate department or director of graduate studies of appropriate college or department

Handicapped Student Services Director of Handicapped Student Services

Housing Director of University Housing

Institutes Chair of appropriate department

Publications Office of University and Community Relations

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Transcripts Associate Dean, Admissions and Records (Records)

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Associate Vice President for Research Administration Building, (901)—678-2590

Dean of the Graduate School Administration Building, (901)—678-2531

President of the University Administration Building, (901)—678-2234

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1990-91 UNIVERSITY CALENDAR

The calendar is subject to change at any time prior to or during an academic term due to emergencies or causes beyond the reasonable control of the institution, including severe weather, loss of utility services, or orders by federal or state agencies. (TBR 2:04:00:01)

FALL SEMESTER 1990

AUGUST 9: Last day for graduate students to remove Spring 1990 "Incomplete" grades when extensions have been granted.

AUGUST 21-23: FALL 1990 Continuous Registration and Drop/Add. For detailed dates and times, see the *Schedule of Classes* for the Fall 1990 Semester.

AUGUST 22: Meeting of new members of the University faculty, 8:30 A.M. Meeting of entire University faculty, 10:30 A.M., followed by meetings of colleges and departments.

AUGUST 23: Faculty advising for Fall 1990 Registration.

AUGUST 24 and 26-29: FALL 1990 Regular Registration and Drop/Add. For detailed dates and times, see the *Schedule of Classes* for the Fall 1990 Semester.

AUGUST 30: Classes begin.

SEPTEMBER 3: Holiday: Labor Day.

SEPTEMBER 6: Last day to add or to register for Fall 1990 courses.

SEPTEMBER 26: Last day for removing Summer Session "Incomplete" grades.

OCTOBER 19: Last day for all students to drop courses.

Last day for all students to withdraw from the University.

NOVEMBER 12-15, 19-21, and 26-29: SPRING 1991 Priority Registration. For detailed dates and times, see the *Schedule of Classes* for the Spring 1991 Semester.

NOVEMBER 12: Last day for graduate students to remove Summer 1990 "Incomplete" grades when extensions have been granted.

NOVEMBER 21: Last day for making application to the dean of the appropriate undergraduate college for degrees to be conferred in May, 1991.

NOVEMBER 22-25: Holiday: Thanksgiving.

DECEMBER 6: Classes end. (Regularly scheduled MWF morning classes will meet at corresponding times today.)

DECEMBER 7-13: Final examinations.

DECEMBER 15: Commencement.

SPRING SEMESTER 1991

JANUARY 9-11 and 13: SPRING 1991 Continuous Registration and Drop/Add. For detailed dates and times, see the *Schedule of Classes* for the Spring 1991 Semester.

JANUARY 11: Faculty advising.

JANUARY 14-17: SPRING 1991 Regular Registration and Drop/Add. For detailed dates and times, see the *Schedule of Classes* for the Spring 1991 Semester.

JANUARY 18: Classes begin.

JANUARY 21: Holiday: Martin Luther King's Birthday.

JANUARY 24: Last day to add or to register for Spring 1991 courses.

JANUARY 29: Last day for removing Fall "Incomplete" grades.

MARCH 8: Last day for all students to drop courses.

Last day for all students to withdraw from the University.

MARCH 10-17: Spring Break.

MARCH 19: Last day for graduate students to remove Fall 1990 "Incomplete" grades when extensions have been granted.

APRIL 8-11: SUMMER 1991 Priority Registration. For detailed dates and times, see the *Schedule of Classes* for the Summer 1991 Semester.

APRIL 10: Last day for making application to the dean of the appropriate undergraduate college for degrees to be conferred in August, 1991.

APRIL 15-18 and 22-25: FALL 1991 Priority Registration. For detailed dates and times see the *Schedule of Classes* for the Fall 1991 semester.

MAY 1: Classes end.

MAY 2: Study Day.

MAY 3-9: Final examinations.

MAY 9: Faculty Convocation.

MAY 11: Commencement.

1990

S	M	T	W	T	F	S
AUGUST						
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

SEPTEMBER

2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

OCTOBER

7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

NOVEMBER

4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

DECEMBER

2	3	4	5	6	7	8
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16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

1991

S	M	T	W	T	F	S
JANUARY						
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

FEBRUARY

3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28		

MARCH

3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

APRIL

7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

MAY

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19	20	21	22	23	24	25
26	27	28	29	30	31	

JUNE

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16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

JULY

7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

AUGUST

4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Dead Week. Definition: The four day period preceding final examinations. No student social or athletic functions shall be scheduled during Dead Week.

Study Day. Definition: The day prior to final examinations during most regular semesters. No academic activities shall be scheduled on Study Day. No study or review sessions which the student may feel obligated to attend may be scheduled.

Final Examination Period. No examination shall be given at a time other than the scheduled time except with written permission from the department chair and the college dean. No social or athletic functions shall be scheduled during the Final Examination Period.

Intercollegiate athletics are excepted from the above policies.

FIRST SUMMER SESSION 1991

MAY 23, 24, 26: SUMMER 1991 Continuous Registration and Drop/Add. For detailed dates and times see the *Schedule of Classes* for the Summer 1991 Session.

MAY 27: Faculty advising.

MAY 27-29: SUMMER 1991 Regular Registration and Drop/Add. For detailed dates and times, see the *Schedule of Classes* for the Summer 1991 Session.

MAY 30: Classes begin.

MAY 31: Last day to add or to register for First Session courses.

JUNE 14: Last day for all students to drop First Summer Session courses.

Last day for all First Summer Session students to withdraw from the University.

JUNE 24-27: FALL 1991 and SECOND SUMMER 1991 Continuous Registration and Drop/Add. For detailed dates and times, see the *Schedule of Classes* for the particular session.

JUNE 25: Last day for removing Spring Semester "Incomplete" grades.

JULY 2: First Summer Session classes end.

JULY 3: First Summer Session exams.

SECOND SUMMER SESSION 1991

JULY 8: SECOND SUMMER 1991 Regular Registration and Drop/Add. For detailed dates and times, see the *Schedule of Classes* for the Summer 1991 Session.

JULY 9: Second Summer Session classes begin.

JULY 10: Last day to add or to register for Second Session courses.

JULY 24: Last day for making application to the dean of the appropriate undergraduate college for degrees to be conferred December, 1991.

Last day for all students to drop Second Summer Session courses.

Last day for all Second Summer Session students to withdraw from the University.

AUGUST 5-8: FALL 1991 Continuous Registration and Drop/Add. For detailed dates and times, see the *Schedule of Classes* for the Fall 1991 Semester.

AUGUST 8: Second Summer Session classes end.

AUGUST 9: Second Summer Session exams.

AUGUST 11: Commencement.

EXTENDED SUMMER SESSION 1991

MAY 27: Faculty advising.

MAY 27-29: SUMMER 1991 Regular Registration and Drop/Add. For detailed dates and times, see the *Schedule of Classes* for the Summer 1991 Session.

MAY 30: Classes begin.

MAY 31: Last day to add or to register for Extended Session courses.

JUNE 24-27: FALL 1991 Continuous Registration and Drop/Add. For detailed dates and times, see the *Schedule of Classes* for the Fall 1991 Semester.

JUNE 25: Last day for removing Spring Semester "Incomplete" grades.

JULY 3: Last day for all students to drop Extended Summer Session courses.

Last day for all Extended Summer Session students to withdraw from the University.

JULY 4-8: Holiday break: Independence Day.

AUGUST 5-8: FALL 1991 Continuous Registration and Drop/Add. For detailed dates and times, see the *Schedule of Classes* for the Fall 1991 Semester.

AUGUST 8: Extended Summer Session classes end.

AUGUST 9: Extended Summer Session exams.

AUGUST 11: Commencement.

DEADLINE DATES

For those who expect to receive
a Master's, Specialist or Doctorate on:

December 15
1990

May 11
1991

August 11
1991

LAST DAY FOR:

Filing "Intent to Graduate Card" with the Graduate School

September 6

January 24

June 31

Filing "Application for Masters & Doctoral Candidacy Form"

September 27

February 14

June 7

Final submission of theses, dissertations and comprehensive examination results to the Graduate School

November 30

April 26

July 26

"Application to Candidacy Forms"

September 28

February 9

June 8

1. DESCRIPTION OF THE UNIVERSITY

GENERAL DESCRIPTION

Mission of the University

From the opening of its doors in 1912 as a normal school for training teachers to its present status as one of Tennessee's two comprehensive universities, Memphis State has been thrust forward by the growth of Memphis and the Mid-South. A town oriented to a rural economy and culture in 1900 grew into a large urban and commercial center mid-century, and the city's public institution of higher learning experienced comparable growth.

The metropolitan and regional requirements for more highly trained university graduates have, of necessity, caused Memphis State to expand all its offerings in arts and sciences, business, the fine arts, education, engineering and technology, law, and several special professional fields. Degrees range from the baccalaureate through the doctorate. More than 75 percent of the full-time faculty have earned the highest possible degree in their fields. The university strives to optimize its resources in its quest for excellence through teaching, research, and service.

As enrollment settles in the 20,000 range, Memphis State is committed to developing programs of the highest quality, for only through such a commitment will it be a standard of quality in higher education for the citizens of the State of Tennessee. As the comprehensive university of the State University and Community College System of Tennessee, Memphis State is striving to increase the ratio of doctoral programs it offers which will also require an increased emphasis on research and scholarship activity. The university is committed to serving a diverse student body of all races, sexes, and nationalities. Every Memphis State student is expected, upon graduation, to be able to compete effectively with his or her counterparts from any other respected university in the nation.

The primary mission of Memphis State University is, therefore, to be a comprehensive university that provides an environment for intellectual, cultural, and ethical development through a wide range of programs. Memphis State University strives to achieve and maintain this mission as part of two major communities: the national and international academic community of scholars and students; and the state of Tennessee and the Mid-South, especially metropolitan Memphis. In both communities, the university strives for excellence and seeks to contribute substantially to the quality of life of its various constituencies.

History

The roots of Memphis State date back to September 15, 1912, with the establishment and opening of the West Tennessee State Normal School, which provided for the training of primary and secondary education teachers. However, the seeds for the normal school's creation were sown three years earlier, in 1909, when the Tennessee General Assembly passed a General Education law calling for the establishment and maintenance of three normal schools, one school located in each of the three grand divisions of the State.

The eastern edge of Memphis became the site for the West Tennessee State Normal School, which in 1925 became the West Tennessee State Teachers College. In 1941, the College's curriculum in liberal arts was expanded, and the name was changed to Memphis State College, an institution serving three to four thousand students. The undergraduate program was reorganized into three schools and a graduate school added in 1951.

On July 1, 1957, Memphis State achieved its status as a university, and has since expanded its degree programs to serve a student population of over 20,000.

Governing Body

The governance and control of Memphis State University is vested in the Tennessee Board of Regents. The Board of Regents consists of eighteen members including thirteen appointed by the Governor; four *ex officio* members - the Governor, the Commissioner of Education, the Commissioner of Agriculture, and the Executive Director of the Tennessee Higher Education Commission - and the immediate past Commissioner of Education. Nine appointed members are from each congressional district and three members are approved at-large from different geographical areas of the state. A student regent is appointed from among the system institutions for a one-year term.

Organization

The schools and colleges which comprise the University are The Graduate School, The Cecil C. Humphreys School of Law, The University College (undergraduate), The School of Nursing, and five colleges offering graduate and undergraduate programs: The College of Arts and Sciences, The Fogelman College of Business and Economics and The School of Accountancy, The College of Communication and Fine Arts, The College of Education, and The Herff College of Engineering. In addition, there is one

independent graduate program in Audiology and Speech Pathology.

THE MEMPHIS COMMUNITY

Memphis is one of the South's largest and most attractive cities. As a medical, educational, communication, and transportation center, Memphis offers a rich and full range of research opportunities and cultural experiences. The city, known worldwide for its musical heritage, has many fine restaurants, museums, and theaters, as well as one of the nation's largest urban park systems. Annual events include the Liberty Bowl game, Memphis in May International Festival, St. Jude Memphis Golf Classic, the Great River Carnival, and Mid-South Fair. The medical complex in Memphis is the South's largest and one of the nation's foremost centers of medical research. A public transportation system provides easy travel between the University and other parts of the city.

The University's modern and beautifully landscaped campus is centrally located in an attractive residential area of Memphis, with shopping, recreation, and entertainment centers nearby. In addition to the facilities on the Main Campus, the University has research and athletic-training facilities and married students' housing on the South Campus.

THE GRADUATE SCHOOL

The *Graduate School* of Memphis State University is the center of advanced study and research within the University. The basic objectives of the *Graduate School* are:

1. to preserve and disseminate knowledge;
2. to extend knowledge through research; and
3. to prepare men and women to assume responsible and useful roles in a changing society.

The Doctor of Philosophy degree is awarded in audiology and speech pathology, biology, business, chemistry, counseling psychology, engineering, history, mathematics, music, philosophy, and psychology. The degrees of Doctor of Education, and Doctor of Musical Arts are awarded by the College of Education and the College of Communication and Fine Arts, respectively. The College of Education also offers the degree of Education Specialist in several of its departments. The Cecil C. Humphreys School of Law offers the Juris Doctor degree.

Master's degrees are offered in fifty-four major areas through five colleges and one independent department. The degrees include Master of Science, Master of Arts, Master of Fine Arts, Master of Arts in Teaching, Master of Education, Master of Business Administration, Master of Music, Master of City and Regional Planning, and Master of Public Administration.

For students with specific and valid educational goals that cannot be satisfied by existing programs, an individual studies major leading to an M.S. or M.A. is coordinated by the Graduate School.

Research Facilities

Library Facilities

The libraries of Memphis State University include the John Willard Brister Library and specialized collections in the Department of Chemistry, the Department of Mathematical Sciences, the Department of Music, the Herff College of Engineering, the Cecil C. Humphreys School of Law, the Speech and Hearing Center, and the Bureau of Business and Economic Research. The total collection numbers more than 1,000,000 bound volumes and some 2,000,000 pieces of micromaterial.

The Brister Library contains a reference and bibliography section, an inter-library loan service, a map collection, the Mississippi Valley Collection (reflecting the history and culture of that region); it is also a depository for United States government documents, and Tennessee State documents. Private study carrels are available to faculty members and graduate students engaged in research.

Memphis State University has agreements with Rhodes College, the University of Tennessee Center for Health Sciences, LeMoyne Owen College, Mid-America Baptist Theological Seminary, Memphis Theological Seminary, Shelby State Community College, State Technical Institute at Memphis, University of Mississippi, and Christian Brothers College for shared use of their library collections by the students, faculty, and staff of these institutions.

Computer Facilities

Computing support for the instructional program of the University and for scholarly research is provided by Computer Services. The central computing system is a Digital Equipment Corporation (DEC) VAX 8820 which has 64 million characters of main memory and more than ten billion characters of user disk storage. This system supports interactive, batch, and network processing. The Training Center in Smith Chemistry Building contains 29 terminals and is used for hands-on training for faculty, staff, and students. Adjacent is an open lab with interactive, high-resolution graphics terminals. Other computing laboratories with academic mainframe terminals and remote high speed lineprin-

ters are located in the Herff College of Engineering, the Fogelman College of Business and Economics, the Winfield Dunn Building, and Richardson Towers Building. Consultants are available in Computer Services and at the remote sites to assist the users of the mainframe academic computer. Access to BITNET, an international electronic network of scholars, is available to researchers through the academic mainframe computer. Consultants and demonstration labs are also available in the Life Sciences Building for microcomputer users.

More than 250 interactive terminals are provided for use in instructional and research programs. In addition to these terminals, there are special purpose minicomputers available in several individual departments including Geological Sciences, Electrical Engineering, Civil Engineering, Engineering Technology, and Mathematical Sciences. Also, there are more than 1,600 microcomputers throughout the University which directly support instruction and research.

Bureau of Business and Economic Research

The Bureau of Business and Economic Research is the organized research and public service unit of the Fogelman College of Business and Economics. The programs of the Bureau include public service to government agencies (state and local) and the business community, continuing education, and applied general research.

Bureau of Educational Research and Services

The Bureau of Educational Research and Services conducts, promotes, and supports research, development, evaluation, and field services in the College of Education. Bureau personnel are active in the operation of projects for local, state, regional, and national education agencies. Services are provided to faculty members through staff development, funding source identification, proposal preparation assistance, and contract administration support.

Cartographic Services Laboratory

The Cartographic Services Laboratory provides assistance to the University community and the Mid-South in the production of maps, graphs, slides, including computer graphics, and other related materials designed for use in presentations, articles, reports, theses, dissertations, books, and exhibits. The Cartographic Services Laboratory is located in the Department of Geography and Planning.

Center for Earthquake Research and Information

Center for Earthquake Research and Information was established in 1977 by the

Tennessee State Legislature to provide the citizens of Tennessee, governmental agencies, and the news media such services as the following: (1) accurate, immediate reports and background information on the occurrence of regional earthquakes; (2) scientific research related to the causes and consequences of local earthquakes and to the possibility of earthquake prediction; (3) studies related to the desirability of earthquake resistant construction; (4) advice to the populace, business, government, and insurance groups on methods, means, and the feasibility of reducing earthquake damage. The Center operates as a research organization of Memphis State University. It supports some undergraduate student research in seismology and geophysics and civil engineering and cooperates with the Department of Geological Sciences in offering an undergraduate degree concentration in geophysics.

Center for Electron Microscopy

The Center for Electron Microscopy provides facilities and expertise in the field of electron microscopy. Users of the Center include researchers and graduate students in the biological and physical sciences.

Center for the Humanities

The Center for the Humanities was founded in 1987 to support faculty and course development, independent and collaborative research, and public programs that foster an understanding of the importance of the humanities. The Center aims at establishing a sense of intellectual community among humanities faculty at the University. In addition to a visiting faculty and scholar lecture series, the Center sponsors a humanities fellows program and awards course development grants.

Center for Manpower Studies

The Center for Manpower Studies, located in the Fogelman College of Business and Economics, conducts research on employment and training-related topics and provides technical assistance to federal, state, and local agencies. It also offers a variety of training programs for human resource development agencies throughout the southeast.

Center for Research on Women

Founded in 1982, the Center for Research on Women, which is located in the College of Arts and Sciences, has rapidly gained national recognition for its pioneering work on race, class, and gender. Its mission is to promote research in the field of women's studies with focus on southern women and women of color in the United States. Since its inception, the Center has received grants for research and research related activity from both foundation and government sources.

Center for the Study of Higher Education

The Center for the Study of Higher Education, located in the College of Education, conducts research and sponsors workshops and conferences in higher education.

Environmental Health and Toxicology Research Institute

The Environmental Health and Toxicology Research Institute serves as a focus for research on toxicological problems and for forming environmental policy. The Institute, located in the Department of Biology, also assists with graduate student and postdoctoral education and training.

Institute for Engineering Research

The Institute for Engineering Research, a unit of the Herff College of Engineering, provides a focal point for the research activities of the college. Its responsibilities fall into several areas all ultimately directed toward the acquisition, development, and support of research by members of the faculty. The Institute houses the following divisions: The Electro-Optics Division, The Bio-Medical Division, Center for River Studies, The Mechanics Division, and The Computer Division. The researchers associated with the Institute include members of the faculty of the Herff College of Engineering, other interested faculty at Memphis State University, faculty of other educational institutions, particularly the University of Tennessee, Memphis, and people from industry and the professions who are interested and qualified to make contributions to projects undertaken by one of the divisions.

Institute of Intelligent Systems

The Institute, established through the Graduate School, brings together academic programming and research in the broad areas of cognitive science, complex dynamical systems, artificial intelligence, and massively parallel computer (neural networking). The work of the Institute involves ideas and techniques from cognitive psychology, computer science, philosophy of mind, neuroscience, linguistics, physics, and mathematics.

Institute of Governmental Service and Research

The Institute of Governmental Service and Research is a research and service agency operating in close coordination with the academic program of the University. It provides research, consulting, and training assistance to government agencies at the local, state, national, and international levels. The focus of the Institute is upon interdisciplinary public policy and the application of academic knowledge to the practical problems confronting government decision-makers.

Regional Economic Development Center

The Center represents the University in its outreach function in the field of economic development planning. In providing technical and management assistance to the public and private sectors, the Center also serves as a laboratory for interdisciplinary research and service by faculty and graduate students in solving problems of urban and regional development. The Center's professional planning staff have academic appointments and teach courses in urban and regional planning.

Speech and Hearing Center

Located in the medical center of Memphis, this facility became affiliated with the University in 1967. It serves children and adults with communication disorders. The University administers and operates the Center in cooperation with the Board of Directors of the Memphis Speech and Hearing Center, Inc.

Other Research Units

In addition to these separately-budgeted units, Memphis State University also recognizes a wide array of other research-oriented units:

- Anthropological Research Center
- Barbara K. Lipman Early Childhood Center and Research Institute
- Center for River Studies
- Center for Economic Education
- Center for Environmental and Energy Education
- Center for Health Services Research
- Center for Humanities
- Center for Life Cycle Studies/Aging
- Center for the Study of William Blake
- Center for Voluntary Action Research
- Ecological Research Center
- Edward J. Meeman Biological Field Station
- Neuropsychology and Evoked Potential Laboratory
- Office of International Studies
- Oral History Research Office
- Public Sector Labor Relations Center
- Robert Wang Center for International Business
- Southern Music Archive
- Transportation Studies Institute

Recognized Centers and Chairs of Excellence

Memphis State University has been designated by the Tennessee Higher Education Commission as the location for centers and chairs of excellence. The units listed below receive special funding by the State in recognition of their status.

Centers of Excellence

- Center for Applied Psychological Research
- Center for Earthquake Research and Information
- Center for Research Initiatives and Strategies for the Communicatively Impaired

- Center for Teacher Education
- Institute for Egyptian Art and Archaeology

Chairs of Excellence

- Accounting (2)
- Art History
- Biomedical Engineering
- Computer Engineering
- English Poetry
- Finance
- Free Enterprise Management
- International Business
- International Economics
- Judaic Studies
- Law
- Molecular Biology
- Nursing
- Philosophy
- Real Estate
- Sales

Academic Services

Planning and Public Service

The Division of Planning and Public Service has overall responsibility for the coordination and development of University outreach activities, the development and implementation of the University's Long Range planning effort, Computer Center operations, and Institutional Research. The services offered through this division are designed to support the teaching, research and service mission of the University and to increase the availability of University faculty and facilities to the general public. For more information about the range of services, contact the Office of the Vice President for Planning and Public Service.

Center for Instructional Service and Research

The primary mission of the Center for Instructional Service and Research is to provide support for the instructional programs of Memphis State University and for some related academic activities of the faculty and staff. Located in the John Willard Brister Library building, CISR provides services through its three divisions: the Learning Media Center, Graphic Design and Production, and Evaluation and Computer Services.

Faculty, staff, and graduate teaching assistants who wish to check out programs and equipment or to order graphics must present a valid MSU ID card. Eligible users may check out equipment and media for use in courses they teach, but not for courses in which they are enrolled.

The Learning Media Center (LMC) maintains the University's collection of instructional audiovisual programs in a variety of formats, including 16mm films, audiotapes, video cassettes, sound-slide and sound-filmstrip sets, and some computer software.

Although the most frequently requested service provided by Graphic Design and Production for faculty and staff is the preparation of graphics for overhead

projection transparencies, service ranges from drymounting and laminating instructional material to presentation posters.

Evaluation and Computer Services conducts the university program for student evaluation of instruction, collecting, analyzing, and reporting student perceptions of classroom instruction.

On the balcony above the Learning Media Center, a laboratory with personal computers and printers is available during LMC hours for individual faculty, staff, and student use. Software may be obtained at the LMC desk. Assistance is available during limited hours, or by arrangement. Members of the faculty who wish to utilize technology in support of their instruction may request advice and assistance in the development of computer assisted instruction.

Evening Academic Services

The Evening Academic Services office provides the full range of academic services to evening and Saturday students normally available to regular day students. The services include career, vocational, personal, and change of major counseling; registration assistance; transcript request and evaluations; withdrawal drop and add requests; financial aid, health service, and other referrals; admissions and readmissions counseling; orientation information; traffic and parking fees, decals and tickets.

Psychological Services Center

The Psychological Services Center is located on the first floor of the Psychology Building. It offers both psychological evaluations and therapeutic services to children and adults. For appointments or information, contact the Center.

Office of Students with Disabilities

The Office of Students with Disabilities provides information and specialized support services that enable disabled students to take full advantage of the educational opportunities at Memphis State. Services include preadmission planning; priority registration; coordination of modified housing accommodations; attendant referral; arranging readers, tutors, notetakers, interpreters; assistance in securing special materials, equipment and adaptive aids; campus shuttle service; liaison with state rehabilitation agencies. Some special services require two to three months advance notice to arrange. Disabled applicants should provide sufficient notification to the Office of Students with Disabilities of any anticipated needs and of their expected date of enrollment. Given adequate time, experienced staff can provide assistance in evaluating individual disability-related needs and in developing a plan of appropriate services.

All persons who have a disability or a handicap are encouraged to register with the Office of Students with Disabilities at the time application is made to the University. This registration entitles students to the legal rights accorded to those with

disabilities and makes it possible to receive helpful assistance with pre-enrollment planning. Applicants should contact the Director of the Office of Students with Disabilities for more specific information.

Memphis State University Press

The Memphis State University Press promotes the development and publication of scholarly books and works of interest to the general reader. The Press welcomes works of regional interest on Tennessee and the Mid-South. In emphasizing scholarly works, the Press gives preference to those of wide appeal to the academic community.

Academic Common Market

The Academic Common Market is designed to allow students from southern states to pay in-state tuition while attending Memphis State University. This arrangement is available only for students whose home states do not offer the designated program. The participating states are Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. A list of available programs can be obtained from the state coordinator in a student's home state or from the office of the Dean of the Graduate School. There are two requirements: (1) Students must be fully admitted to a degree seeking program which has been approved as an Academic Common Market program (non-degree and conditional students are ineligible); (2) Students must obtain a letter certifying residency from their state's Academic Common Market coordinator.

Oak Ridge Associated Universities

Memphis State University is a member of the Council of Sponsoring Institutions of Oak Ridge Associated Universities (ORAU), a not-for-profit consortium of 49 colleges and universities and a management and operating contractor for the U.S. Department of Energy with principal offices located in Oak Ridge, Tennessee. Founded in 1946, ORAU identifies and helps solve problems in science, engineering, technology, medicine, and human resources. ORAU conducts research and educational programs in energy, health, and the environment for DOE, ORAU's member institutions, other colleges and universities, and other private and governmental organizations.

The ORAU Laboratory Graduate Participation Program enables graduate students in the previously listed disciplines, who have completed all degree requirements excepts thesis or dissertation research, to perform full-time thesis or dissertation research under the joint direction of the major professor and a DOE staff member at a participating site. Student stipends vary but usually include adequate living allowance, tuition, and fees. Faculty stipends are usually based on current institutional salary. More information is

available from Memphis State University's representative on the ORAU Council of Sponsoring Institutions, E.P. Segner, Jr., or by writing University Programs Division, P.O. Box 117, Oak Ridge, Tennessee 37831-0117.

Jackson Graduate Center

The Memphis State University Graduate Center in Jackson, Tennessee, is located on the Jackson State Community College campus. Through the Center, students can complete certain degree programs by attending part-time in the afternoons and at night.

The Jackson Graduate Center offers course work leading to master's degrees as well as additional graduate and post-graduate course work. Students at the Center may earn the M.B.A. with a concentration in Management, the M.Ed. or the M.S. in Counseling and Personnel Services, Curriculum and Instruction, Educational Administration and Supervision, or Special Education. Selected courses in the Colleges of Arts and Sciences and Communication and Fine Arts are also offered. The Center is part of Memphis State's Office of Extended Programs.

CECIL C. HUMPHREYS SCHOOL OF LAW

PROGRAM: The Cecil C. Humphreys School of Law offers a program of instruction leading to the degree of Juris Doctor. A student may enroll only in the fall semester on a full-time or part-time basis. A student regularly employed more than 20 hours per week may not pursue the full-time program.

The successful completion of 90 semester hours of work, including all required courses, with the prescribed grade average is necessary for graduation. Unless an exception is granted, the last two regular semesters work must be taken in this school.

ADMISSION: Admission to the Cecil C. Humphreys School of Law is on a selective basis. To be eligible for admission, a student must have received a bachelor's degree from an accredited college or university and must have made a satisfactory score on the Law School Admission Test administered by the Law School Admissions Services, Box 2000, Newtown, PA 18940. Questions concerning additional admissions requirements should be directed to the Director of Law Admissions and Recruitment.

The regulations and policies of the School of Law are set out in greater detail in a separate issue of the **Law School Catalog**. Additional information may be obtained from the Director of Law Admissions and Recruitment.

2. ADMISSIONS AND REGULATIONS

ADMISSION TO THE GRADUATE SCHOOL

The Graduate School is open to persons holding the bachelor's or master's degree from accredited colleges and universities whose undergraduate or graduate work has been of sufficient quality and scope to enable them to profitably pursue graduate study. Memphis State University offers equal educational opportunity to all persons without regard to race, religion, sex, age, creed, color, national origin, or physical handicap.

Applicants will be required to meet admissions criteria established by the Graduate School in order to enroll in graduate courses. In order to be admitted to a degree program in any academic department, students may be required to meet additional standards set by the department or college.

Applications for admission to the Graduate School may be secured from the Graduate Admissions Office.

Deadlines for submitting applications for admission are: August 1 for the fall semester, December 1 for the spring semester, and May 1 for the summer session. Applications received after these deadlines will be considered only for one of the special categories. All applications must be accompanied by a five-dollar (\$5.00) non-refundable application fee.

All credentials become the property of the University and will not be forwarded or returned. Credentials will be maintained in active files for a 12 month period after which credentials will be relegated to inactive status and must be submitted again before an admission decision will be made. The applicant is advised to have all credentials on file well in advance (preferably thirty days) of the registration period for the term for which application is made.

Admission of International Students

Memphis State University believes that the presence of a balanced representation of international students on campus will enrich the educational environment for all students. The University is authorized under Federal law to enroll non-immigrant alien students on the "F-1" student visa. Applicants must file complete credentials before May 1 for fall admission; September 15 for spring admission; or February 1 for summer admission. Complete credentials include all the documents listed below under requirements. International applicants awarded bachelor's or master's degrees from U.S. institutions and who are residing in the U.S. presently may submit the application for Graduate School up to

July 1 for the fall semester, November 1 for the spring semester, and April 1 for the summer session.

The application should be completed carefully and returned to the Office of Admissions, Memphis State University, Memphis, Tennessee, 38152.

A non-refundable application and processing fee of thirty dollars (\$30.00) is required of every International applicant, unless previously paid. A check or money order, made payable to Memphis State University, must be sent with the application form.

International applicants should write the Office of Admissions for information on application procedures, qualifications, and admission to the University. Since the University often receives more applications than can be approved, applicants will be selected on a competitive basis and therefore admission will not be granted to all applicants who meet only the minimum requirements. Priority will be given to applicants with exceptional credentials who will be attending a university in the United States for the first time.

All transcripts, test scores, and other credentials must be accompanied by an official English translation of these documents and must be on file in the Office of Admissions by the stated deadlines.

Requirements

In addition to admissions requirements described in the next section, international students must supply the following:

1. TOEFL Scores: All applicants whose native language is not English must supply a minimum score of 500 on the Test of English as a Foreign Language (TOEFL) or its equivalent, although some units require a higher TOEFL score. Information can be obtained by writing to TOEFL, Educational Testing Service, Princeton, New Jersey, 08540, U.S.A. All test scores must be sent directly from the testing agency to Memphis State University.

2. Financial Statement: An applicant on an "F-1" student visa must supply, on the form provided by the University, sufficient evidence of financial support for the applicant and all members of his/her family who will accompany the applicant to Memphis. This requires that the applicant certify that his/her intent is to attend the University full-time and that no employment will be required.

3. Photos: Each applicant must provide two recent passport size photos to the Office of Admissions, Memphis State University.

4. Health Certificate: Each International student, within 30 days from the first day of classes, must submit a certificate from a licensed U.S. physician or other qualified U.S. medical authority verifying freedom

from tuberculosis. Failure to do so shall result in denial of enrollment. In the event that a student either has tuberculosis or has potential tuberculosis requiring medical treatment, continued enrollment will be conditioned upon the determination by a licensed U.S. physician that such enrollment does not present a risk to others and upon the student's compliance with any medical treatment program.

5. All international students must purchase health insurance before they are allowed to enroll.

6. International students who wish to apply for readmission to the University must meet the deadlines stated above.

Admission to Non-Degree Status

Combination Senior

An undergraduate senior student with a total cumulative GPA of at least 3.25 who is enrolled in the last term of coursework at Memphis State University that will complete the requirements for a bachelor's degree, may request approval to enroll concurrently in undergraduate and selected graduate courses. The Combination Senior student is not considered a graduate student and may take no more than nine departmentally approved graduate semester hours. After the bachelor's degree has been awarded, the student may apply for admission to The Graduate School.

Graduate Non-Degree

The Graduate Non-Degree classification is for students who wish to enroll in graduate courses but who do not wish to pursue any graduate degree at MSU. The Graduate Non-Degree student must have on file at MSU an official transcript showing at minimum a bachelor's degree from an accredited college or university and may enroll in selected graduate courses on a space available, departmental approval basis only. Graduate Non-Degree students who decide to matriculate for a degree must make application to The Graduate School and must meet all admissions requirements. After acceptance into the master's or doctoral program, the student must complete a minimum of 2/3 of the course credits required in that program irrespective of the number of credits completed as a non-degree student.

Non-degree students must maintain a 3.00 GPA.

Admission to Master's Degree Programs

Graduate Master's

An applicant may be considered for admission as a graduate master's student by meeting the following requirements:

1. *Baccalaureate Degree*

An official transcript showing a bachelor's degree awarded by an accredited college or university with an acceptable grade point average. In addition, transcripts from any other college or university attended may be requested. (Students who received bachelor's degrees from Memphis State may disregard this step.)

2. *Entrance Examinations*

An acceptable combination of undergraduate GPA and appropriate test scores.

Graduate Record Examination (GRE): A **minimum** total score of 1350 in the following computation: baccalaureate GPA X 200 + GRE (verbal and quantitative). **No GRE score below 750 acceptable, irrespective of GPA.**

Miller Analogies Test (MAT): A range of MAT scores between 30 to 36 required depending upon GPA. **No MAT score below 30 is acceptable, irrespective of GPA.** Scores on MAT exams written in less than 2 month intervals are not acceptable.

Applicants for the Fogelman College of Business and Economics: All applicants to the College must submit a **minimum** total score of 1050 in the following computation: baccalaureate GPA (last 60 hours) X 200 + Graduate Management Admissions Test (GMAT). **No GMAT score below 430 acceptable, irrespective of GPA.**

3. *Departmental Requirements*

Many departments have higher requirements for admission. Applicants are advised to refer to the appropriate section in this catalog for details.

Master's Conditional

Master's degree program applicants who have an acceptable undergraduate grade point average (**minimum of 2.50**) or an acceptable admissions test score (**minimum of 33**) may be eligible for the Master's Conditional classification. Master's Conditional students are not admitted to any degree program, and may enroll for one semester only for a maximum of nine semester hours of graduate coursework. After all admission requirements have been met, the Master's Conditional student must reapply for admission to a master's degree program.

Education Specialist (Ed.S.)

The Education Specialist degree is specially designed for the educator practitioner who desires post master's training but who does not wish to earn a doctorate. Scores on MAT exams written in less than 2 month intervals are not acceptable. This program is administered by the College of Education, please refer to the appropriate section of this catalog for a description of this program. Contact the College of Education for additional details.



Students who have not met all admissions requirements may be eligible to be enrolled for one term only. They may continue when all requirements are satisfied. Contact Office of Graduate Admissions for further information.

Admission to Doctoral Degree Programs Early Doctoral

A student may qualify for admission to doctoral programs by meeting the following requirements:

1. *Master's Degree:* An official transcript showing a master's degree with an acceptable grade point average awarded by an accredited college or university.

2. *Entrance Examinations:* A **minimum** total score of 1600 in the following computation: master's GPA x 200 + Graduate Record Examination (GRE). **No GRE score below 850 acceptable, irrespective of GPA.**

The Fogelman College of Business and Economics requires a **minimum** total score of 1200 in the following computation: master's GPA x 200 + Graduate Management Admissions Test (GMAT). **No GMAT score below 480 acceptable, irrespective of GPA.**

3. *Departmental Requirements:* Higher requirements are held by some departments. In addition, some departments may require additional items such as portfolios, proficiency examinations, auditions, etc. Refer to the appropriate departmental description in this catalog for details.

Students who have not completed a master's degree but who wish to enter a doctoral program must apply for and be admitted as a master's candidate. The student will be reclassified as "doctoral" by the Graduate School upon request of

the department and after presenting acceptable test scores.

Doctoral Conditional

Doctoral degree program applicants (and Education Specialist applicants) who have an acceptable graduate grade point average or an acceptable admissions test score may be eligible for the Doctoral Conditional classification. Doctoral Conditional students are not admitted to any degree program and may enroll for one semester only for a maximum of nine semester hours of graduate coursework. After all admission requirements have been met, the Doctoral Conditional student may apply for admission to a doctoral degree program.

Readmissions

A student who does not enroll during a spring or fall semester may have to meet current entrance requirements upon readmission. Readmission to the Graduate School is usually possible for all eligible students when applications for readmission are submitted on or before August 1st for the fall term, December 1st for the spring term and May 1st for the summer terms. Applications for readmission submitted after these deadlines, but no later than August 15th for the fall term, December 15th for the spring term and May 15th for the summer terms, will be considered only if the applicants readmission status can be cleared before the first day of registration. Applications for readmission submitted after the August 15th, December 15th and May 15th dates will be considered only for those applicants who wish to re-enter the same degree program in which they were last enrolled, have an acceptable graduate GPA, and were last enrolled at MSU less than five years from the desired term of

re-entry. Applications for readmission submitted after the last day of regular registration will not be considered.

Miscellaneous Information

Health Services

Limited medical services are available in the University Health Center. Out-patient medical services, including general clinical evaluation, diagnosis and treatment; laboratory and X-Ray; optometry clinic; family planning; nutrition clinic; and dispensary are available. There is no charge for services and limited prescription drugs are available at a discount.

Entrance Examination Information

a. *Miller Analogies Test (MAT)* — Students who wish to arrange for the MAT should contact the Testing Center, Health Center, Rm. 111, Memphis State University.

b. *Graduate Record Examination (GRE)* — Registration packets for the GRE may be obtained from the Graduate Admissions Office, and the Testing Center.

c. *Graduate Management Admissions Test (GMAT)* — Registration packets for the GMAT are available in the Graduate Studies Office of the Fogelman College of Business and Economics, and in the Testing Center.

Residency Classification

All determinations concerning the classification of students as in-state or out-of-state for fee purposes are made in the Office of Admissions by the Admissions Adviser for Residency. The determinations are based on the regulations and guidelines of the State Board of Regents. A copy of the guidelines and regulations used in the classification of students for fee-paying purposes may be found on the sample application form at the back of this catalog. If, for any reason, there is a question about a student's residency classification for fee-paying purposes, it is his or her responsibility to check with the Admissions Adviser for Residency.

Veterans Services

The Office of Veterans Services as a component of the Student Aid Office provides assistance to eligible veterans and dependents who enroll at Memphis State University. The Office also provides assistance about a variety of programs and services including Programs of Education and Training, VA Tutorial Services, VA Workstudy Positions, or VA Educational Loans, as well as counseling and referral for personal, family, career, financial, and educational problems.

Air Force ROTC Two Year Program

Graduate students are eligible to earn a commission as a second lieutenant in the U.S. Air Force by completing 12

semester hours of the AFROTC advanced program in conjunction with their graduate school studies. Applications are accepted during January and February for Fall semester entries. (Contact the Department of Aerospace Studies for details).

Army ROTC Two Year Program

Graduate students are eligible to earn a commission as a second lieutenant in the U.S. Army by completing 16 semester hours of the ROTC advanced program in conjunction with their graduate school studies. See the Professor of Military Studies for further information.

ACADEMIC REGULATIONS

Graduate and prospective graduate students are expected to become thoroughly familiar with the rules, regulations, and degree requirements of the Graduate School and of the academic departments. The following regulations and requirements are minimums and in some cases are exceeded by the individual departments.

Appeals: A student has the right to appeal decisions made by University officials in the implementation of University policy. If a student feels that individual circumstances warrant an appeal, the request for appeal must be filed in the University office responsible for the administration of that policy or the office specified in the policy statement.

Course Numbering System

Only students admitted to the Graduate School may enroll in and receive graduate credit for courses numbered according to the following system:

5000-5999— Graduate courses designed for *personal/professional development*, not applicable to degree programs.

6000-6999— Courses equivalent to 4000 level senior courses for which a limited amount of graduate credit may be earned. Students will be expected to do more work and/or to perform at a higher level to receive graduate credit.*

7000-7999— Courses open primarily to master's students

8000-8999— Courses open primarily to post-master's students

*Students may not receive credit for a 6000 level course if they have credit at the 4000 level.

Course Load Limitations

Fifteen semester hours of graduate coursework shall be the maximum load for students devoting full time to graduate study during regular sessions. The maximum

number of hours of graduate course work for which a graduate student may enroll during the Summer Session is 12 (6 in first summer term and 6 in second summer term or 12 in extended summer term). If a student enrolls in the first or second summer term and the extended summer term, the maximum concurrent enrollment is 9 hours.

Those who register for 9 or more hours will be considered full-time students. Graduate assistants who work 20 hours per week must register for no less than 6 and no more than 9 semester hours in the fall and spring terms. Graduate assistants who hold a full-time assistantship for the summer may enroll for a maximum of 6 semester hours.

Requests for overloads must be approved by the Director of Graduate Studies in the student's college. (The directors are identified in the Faculty and Staff section of this catalog). For students in Audiology and Speech Pathology, approvals must be issued by the graduate coordinator.

Change of Major

Students who have previously declared a major area of study but desire to make a change should apply to the Graduate Office to begin the process for a change of major.

Adding and Dropping Courses Withdrawal from Graduate School

Courses may be added or dropped after registration for a limited period of time *only*. Refer to the University Calendar for specified dates. Exceptions may be made *only for unusual circumstances* as determined by the Dean of the Graduate School.

A graduate student may withdraw from the University or drop a course after the drop date *only when circumstances beyond the student's control makes it impossible to complete the semester*. All withdrawals and late drops must be processed through the Office of the Dean of the Graduate School.

Attendance

Requirements for attendance in any graduate course will be determined by the instructor, and must be communicated in writing to students in the first class meeting of the term.

Grading System

Grades

The grades which may be awarded are as follows: A-B-C-D-F. Symbols used to postpone or suspend grading include I (incomplete), IP (in progress), DP (drop), and W (withdrawn).

The grades for many 5000 courses, student teaching, workshops, practica, internships, theses, and dissertations (designated in the listing of courses with \$) shall be "S," "U," or "IP" in progress. The student's performance in the course should be the equivalent of at least a "B" for the grade of "S" (Satisfactory).

Incomplete

The symbol "I" (incomplete) may be assigned by the instructor in any course in which the student is unable to complete the work due to extraordinary events beyond the individual's control. The "I" may not be used to extend the term for students who failed to complete the course with a satisfactory grade. Unless the student completes the requirements for removal of the "I" within 45 days from the end of the semester or summer term in which it was received (see University Calendar), the "I" will be changed to an "F", regardless of whether or not the student is enrolled. Only *one* extension of 45 days may be granted by the instructor if sufficient extenuating circumstances exist. At the end of the 45 day extension period, the "I" symbol will automatically and permanently revert to an "F" and credit may only be earned by repeating the course. The student will be certified for graduation when all requirements are met, including the removal of all "I" symbols. For students who have an "I" in the semester in which they expect to graduate, the certification process will automatically be deferred to the next term.

In Progress

Instructors of research courses may give a grade for "work in progress" (IP) to extend the time required for the completion of such research. A final grade of S or U is filed upon completion of the project.

Grade Point Average

The Grade Point (GPA) for graduate students is computed on ALL graduate courses completed. Graduate students must maintain a 3.00 GPA ("B"). A grade below "C" will not apply toward any graduate degree, but will be computed in the GPA. No more than 7 hours of "C" will be applied towards meeting degree requirements. Grades earned at another university will not be computed in the cumulative GPA. Grades in courses which are older than the time limitation for degree (6 years for master's; 10 years for doctoral) will be shown on the transcript but will not be included in the computation of the average required for graduation.

Repetition of Courses

Graduate students may repeat courses in which grades lower than "B" were earned. However, both grades are computed in the GPA regardless of whether the second grade is higher or lower than the first.

Thesis Credit

A student who fails to complete the thesis after having registered for the maximum degree credit allowable must continue active thesis status by registering for thesis credit. See individual departments for specific requirements. This renewal of active status must be continued each academic semester until the thesis is completed. Registration in the extended term of summer school will fulfill the requirement for the summer. Credit will be posted upon completion and acceptance of the thesis, but no more than 6 hours will be allowed for a Master's thesis, even though the student may have been required to register for additional hours in order to remain in active status. The registration may be waived for any semester if the student's adviser is not available and for other reasons approved in writing by the department chairman.

This policy also applies to the three hour capstone project (PLAN 7986) required for the Master of City and Regional Planning (MCRP) degree.

Grade Changes

Grades properly issued in a course by the faculty member of record *will not be altered* except when an error was made in computation or reporting or as a result of a formal grade appeal.

Academic Probation

A graduate student whose cumulative grade point average drops below 3.00 will be placed on probation. Two consecutive semesters on probation will result in automatic suspension of the registration process. Conditions under which continuation in the graduate school will be granted must be recommended by the department and approved by the Dean of the Graduate School. (If, in the opinion of the Graduate Dean and the academic department, the student is not making satisfactory progress toward degree completion, the student will be dismissed from the degree program).

Grades made in the final semester may not be used to correct GPA deficiencies. Students must have at least a 3.00 GPA when the Intent-to-Graduate card is filed.

Graduate Faculty

The designation "Graduate Faculty" is bestowed by the University upon faculty following review of their credentials and recommendation by their colleagues. The Graduate faculty support graduate programs by chairing and serving on graduate student committees, planning and designing graduate instructional program, supervising graduate student research, participating in the design and review of policies governing graduate affairs, and discharging other duties critical to maintaining a functional graduate school.

Memphis State maintains two levels of graduate faculty, full and associate. Applicants for graduate faculty status must show evidence of scholarly production. Only full graduate faculty members may chair doctoral committees. The chairs of master's committees may be filled by full or associate graduate faculty. A listing of graduate faculty with periods of appointment may be found in the back of this catalog. Contact the Graduate School for additional information.

Privacy Rights of Parents and Students

The Family Educational Rights and Privacy Act of 1974, with which the University intends to comply fully, is designed to protect the privacy of educational records, to establish the right of students to inspect and review their educational records, and to provide guidelines for the correction of inaccurate or misleading data through informal and formal hearings. Students also have the right to file complaints with The Family Educational Rights and Privacy Act Office (FERPA) concerning alleged failures by the institution to comply with the Act.

The provisions for the release of information about students and the rights of students and others to have access to Memphis State University education records are published in their entirety each semester in the *Schedule of Classes*.

Audit Courses

Students who are registered for one or more classes at Memphis State University may also register to audit one course with the approval of the chair of the department in which the course is offered.

Persons who are not enrolled for credit courses may register for a maximum of three audit courses with the approval of the Dean of Admissions and Records and the department chairman.

Audit will be posted on a student's transcript only if at the time of evaluation the faculty member judges that the student has attended enough classes to earn the audit notation. The requirements for attendance should be made known to the student at the beginning of the term.

A student may not change from a grade point basis to audit or from audit to a grade point basis after the last day to add classes for that term.

Fees for audits will be assessed on the same basis as fees for credit courses.

Credit by Examination

The departments, with approval from the Dean of Graduate Studies, may offer graduate courses for credit by examination provided that total credit by examination applied to a student's degree program does not exceed six (6) semester hours.

The following regulations govern the granting of credit by examination:

1. A student enrolled in a degree program — full-time or part-time — who is in good academic standing may make application to take an examination for credit.

2. Permission to take credit by examination must be obtained from the major adviser, department chairman, and the college director of graduate studies. When this permission is granted, and after payment is made for the cost of the examination, the Dean of Graduate Studies will issue the official permit for the examination. When the department chairman returns the completed form to the Graduate Office, the Dean will authorize the posting of the credit to the student's record.

3. The form of the examination, the method of administering it, and the time of examination are left to the discretion of colleges and departments.

4. To receive credit, the student's examination grade should be a grade equivalent of at least a "B." Credit is indicated on the student's record as "Cr."

Course Validations

The University sets time limits on students as a device to insure that they have reasonably current knowledge in those courses which comprise the graduate program and for which a graduate degree is awarded. When MSU coursework is too old to be included in a graduate program (6 years for masters, 10 years for doctoral) the department may allow the student access to validation procedures subject to the following regulations:

1. Only students fully admitted to graduate programs and who are in good standing are eligible.

2. Not more than one-third of the total credits in the program may be validated.

3. Only courses with fixed content are eligible for validation. (Independent study, research, special topics courses are ineligible).

4. Validated courses will be graded S or U with a satisfactory grade given for B or better performance. Graded exams must be filed in the Office of the Graduate Dean or the dean of the college in which the course is offered.

For additional information about course validation procedures, contact the Graduate School Office.

Independent Study

Independent study is planned study, under the direct supervision of faculty, of a project not covered in any other format in the University. NOTE: Independent study modules may not be used as vehicles to teach formal courses offered under other course numbers.

Transfer Credit

There is no automatic transfer of credit toward a graduate degree, but, in general,

graduate work completed at another accredited graduate institution may be accepted in a graduate degree program at MSU, provided these courses (1) have not been used for a previous graduate degree, (2) relate to the content of the graduate program and/or are comparable to those offered at MSU, and (3) do not exceed time limitations set for master's and doctoral programs. Credit earned at another institution must be presented for evaluation no later than the student's application for degree candidacy. Forms are available in the Graduate Office (315 Administration Building).

Approved transfer credit may be accepted for *not more than 6 semester* hours of course credit toward a master's or Ed.S. degree (for exceptions, see the departments of Art and Geography and Planning). Credit will be transferred to apply toward a doctoral program upon approval of the student's departmental advisory committee, *however, the last thirty semester hours of credit for the doctoral degree must be earned at the main campus of Memphis State University.*

Grades earned at another institution will not be computed in the MSU cumulative grade point average, nor will they be accepted for transfer unless they are "B" or better. No credit will be transferred unless it meets with the approval of the major adviser. Graduate credit is never granted for courses taken by correspondence. No credit will be allowed toward specialist or doctoral degrees for special short courses.

Appeals Procedures

Grade Appeals

This appeal procedure is designed to provide any graduate student at Memphis State University with a clearly defined avenue for appealing the assignment of a course grade which is believed to be based on prejudice, discrimination, arbitrary or capricious action, or other reasons not related to academic performance. In all cases the complaining student shall have the burden of proof with respect to the allegations in the complaint and in the request for a hearing. If any party fails to pursue any step of the procedure within the prescribed time frame, the disposition of the student's complaint made in the previous step shall be final. Copies of all correspondence and records will be retained in the office in which the complaint is finally resolved. The original documents will be forwarded to the Graduate Office for filing.

Step 1 The student shall first consult with the instructor in an effort to provide a satisfactory resolution of the complaint. In the event the student cannot schedule a meeting with the instructor, he or she may contact the department chair who will schedule the meeting between the student and the instructor. If for any reason the instructor is not available, proceed to Step 2. If agreement is reached between the

student and instructor, the appeal process ends.

Step 2 If the complaint is not resolved in Step 1, the student must complete a Graduate Student Grade Appeal Form (available in the Graduate Office, Administration Building, Room 315). This form will be sent to the chair of the department by the Graduate Office. Next, the student must present a written statement detailing the factual basis of the complaint to the chair of the department in which the course was taken. The written complaint must be received by the chair within forty-five days from the end of the term in which the contested grade was received. The department chair will then attempt to resolve the complaint in consultation with the instructor and the student within a *fifteen-day* period dating from the written complaint. The department chair may, at his or her discretion, counsel with the faculty of the department.

If the department chair was the instructor of the course involved in the complaint, the written complaint of the student shall be submitted to the dean of the college.

The student's grade may be changed in Step 2 of the appeal procedure by the written consent of the instructor and the student.

Step 3 If the complaint cannot be resolved at the level of Step 2 within the prescribed fifteen-day time period, the student, within *five days* following the end of such period, may request in writing that the chair forward the complaint to the dean of the college. The chair will provide the dean with a copy of all correspondence, the Graduate Student Appeal Form, and other records pertaining to the complaint.

The dean may utilize any resources available to resolve the grade conflict within a *fifteen-day* period. If the dean and chair are in agreement that the grade should be changed, either raised or lowered, the dean shall be empowered to change the grade without the instructor's consent. Otherwise the grade shall remain as recorded.

Either the student or the instructor may appeal the decision made under Step 3 within *five days* by filing with the Graduate Dean a written request for a hearing before the Graduate Grade Appeals Committee.*

Step 4 The written request for a hearing before the Graduate Grade Appeals Committee should state the factual basis for the appeal of the dean's decision. If the Committee finds the student's or the instructor's request merits a hearing, the Committee shall notify the student, the instructor, the chair, and the college dean of the date, time, and the location of the hearing. If the Committee finds that the request does not merit a hearing, the student or the instructor shall be so notified.

The Graduate Grade Appeals Committee may utilize any available resources to resolve the conflict within a *fifteen-day* period. If the Committee is in agreement that the grade should be changed, either raised or lowered, the Committee shall be

empowered to change the grade without the consent of the instructor. Otherwise, the grade shall remain as recorded. The decision of the Committee will be communicated to all parties in writing. **The decision of the Graduate Grade Appeals Committee will be final.**

The appeals procedure is not complete until all appropriate records are forwarded to the Graduate Office. At this time, the Graduate Dean will notify the Record's Office of any grade change. A copy of the Graduate Student Grade Appeals Form will become a part of the student's file. A permanent record of all grade appeals reviewed by the Grade Appeals Committee shall be maintained in the Office of Graduate Studies.

*The Graduate Grade Appeals Committee shall be composed of seven members and seven alternates constituted as follows:

A chair designated by the Vice President for Academic Affairs and selected from the graduate faculty, a graduate faculty member and alternate designated by the Dean of Graduate Studies, and two graduate faculty members and two alternates elected by the University Council for Graduate Studies and Research. Three students and three alternates selected through the Graduate Student Association.

NOTE: The summer semesters are considered as one term for grade appeal purposes; i.e., the period for appealing is 45 days from the end of the *last* summer term.

Retention Appeals

Appeals are to be presented and hearings on appeals convened only during periods in which the academic units of the University are in session. Time limitations will be extended to accommodate this requirement.

All parties concerned must receive copies of:

1. The requests for a hearing.
2. Notices of the time and location of the hearing.
3. The disposition of the hearing request in each step of the appeal procedure.

As soon as notice is received that the appeal is continuing, copies of all correspondence and other records pertaining to the complaint must be provided the individual responsible for continuing the appeal by the responsible individual in the preceding step.

Step 1

A. The student must submit a written request to the department chair for a hearing to appeal termination from the program. The request should state the factual basis for the appeal.

Time Limitation: Forty-five days from the end of the term during which the termination was received.

B. In consultation with the student and appropriate departmental committee, the department chair will render a decision on the appeal. The student and departmental committee will be notified in writing of the

department chair's decision and reasons supporting the decision.

Time Limitation: Fifteen days following the receipt of the complaint.

Step 2*

A. The student, or the departmental committee may appeal the decision made in Step 1 by filing, with the college director of graduate studies, a written request for a hearing before the college council for graduate studies. The request should state the factual basis for the appeal of the chair's decision.

Time Limitation: Five days following the announcement of the decision by the chair.

B. The college council will notify the student, departmental committee and chair of the date, time and location of the retention appeals hearing. If the college council is in agreement that the student should be reinstated, the council shall be empowered to reinstate the student. The student, departmental committee and chair will be notified in writing of the college council's decision and reasons supporting the decision.

Time Limitation: Fifteen days following the receipt of the written request.

***In the case of free-standing departments that are not represented on a college council, Step 2 will be omitted and the appeal will be forwarded to the individual functioning as dean of the unit involved.**

Step 3

A. If the complaint cannot be resolved at the level of Step 2, the student, or the departmental committee may request in writing that the college director of graduate studies forward the complaint to the dean of the college.

Time Limitation: Five days after the announcement of the decision by the college council.

B. The college dean may utilize any resources available to resolve the conflict. The chair, college director of graduate studies, departmental committee, and student will be notified in writing of the dean's decision. If the dean, college director of graduate studies and the chair are in agreement that the student should be reinstated, the dean shall be empowered to reinstate the student.

Time Limitation: Fifteen days following the written request for appeal.

Step 4

A. If the complaint cannot be resolved at the level of Step 3, the student or the departmental committee may appeal the decision by filing with the graduate dean a request for a hearing before the University Council for Graduate Studies and Research. The written request for a hearing must state the factual basis for the appeal.

Time Limitation: Five days following the announcement of a decision by the college dean.

B. If the University Council for Graduate Studies and Research finds that the appeal does not merit a hearing, the college dean, college director of graduate studies,

department chair, departmental committee, and the student shall be notified by the graduate dean.

Time Limitation: Fifteen days following the receipt of the written appeal.

C. If the University Council for Graduate Studies and Research finds that the appeal merits a hearing, it will notify the college dean, college director of graduate studies, department chair, departmental committee, and student of the date, time, and location of the retention appeals hearing. Any available resources may be used by the University Council to resolve the conflict. If the University Council is in agreement that the student should be reinstated, it shall be empowered to reinstate the student. The graduate dean will notify in writing the college dean, college director of graduate studies, department chair, and student of the decision and reasons supporting the decision.

Time Limitation: Fifteen days following the receipt of the written appeal.

The decision of the University Council for Graduate Studies and Research is FINAL.

Expiration of Catalog

The degree requirements published in the *Graduate School Catalog* of the Memphis State University *Bulletin* are valid for seven years from the beginning of the academic year to which the catalog applies. A student may complete the degree under the provisions of any valid MSU catalog provided the effective date of that catalog is not earlier than the student's initial graduate admission to MSU or some other accredited institution of higher learning. (This issue of the catalog is valid *until* fall of 1997.)

NOTE: Although the requirements for a degree program may be effective for seven years, there are other time limitations which relate to the completion of specific degrees within specific time periods. See *Time Limitations* sections for master's and post-master's degrees in the following portions of this chapter.

MINIMUM DEGREE REQUIREMENTS

Graduate Academic Programs

Graduate students are expected to be aware of and to comply with the general requirements for the degrees they are pursuing as outlined in the *Graduate School Catalog*. In addition to the general requirements, students are expected to conform to any additional requirements set by the student's college or department.

A wide variety of graduate programs of study are offered in The Graduate School at Memphis State University. Candidates for a degree must design a plan which has

the approval of their major adviser, the department chair, and the Graduate Dean.

Memphis State University offers Master's degrees, Education Specialist degrees, and Doctoral degrees. The Master's programs are: Master of Arts (M.A.), Master of Science (M.S.), Master of Arts in Teaching (M.A.T.), Master of Business Administration (M.B.A.), Master of City and Regional Planning (M.C.R.P.), Master of Education (M.Ed.), Master of Fine Arts (M.F.A.), Master of Music (M.Mu.), and Master of Public Administration (M.P.A.). In addition, the degrees of Education Specialist (Ed.S.), Doctor of Education (Ed.D.), and Doctor of Musical Arts (D.M.A.) are offered. The Doctor of Philosophy (Ph.D.) is awarded in Audiology and Speech Pathology, Biology, Business Administration, Chemistry, Counseling Psychology, Engineering, History, Mathematics, Music, Philosophy and Psychology.

Foreign Language Proficiency

A reading knowledge of at least one foreign language is required in several graduate programs. This requirement may be met in one of three ways: (1) achieving a score on the Graduate School Foreign Language Test (GSFLT) acceptable to the department granting the degree; (2) achieving a grade of "B" or better in designated courses; or (3) demonstrating a reading knowledge of a foreign language at a level acceptable to either the Coordinator of Graduate Studies or the chair of the Department of Foreign Languages and Literatures. For additional information consult the department directly.

Minimum Requirements for Master's Degree

Courses Requirements

The Master's degree program shall generally include 30-36 semester hours of course work. Additional requirements for the Master of Fine Arts in Theatre, the Master of Fine Arts in Studio Art, the Master of Public Administration, and the Master of City and Regional Planning can be found in the appropriate department listing. The student's program must be approved by the major department.

A minimum of 70% of the total required hours must be provided by 7000 level courses.

No more than 9 hours of workshop courses and independent study courses may be applied to a Master's degree.

Thesis Requirements

Most departments provide students both a thesis and a non-thesis option (see department descriptions).

A thesis of 3 to 6 semester hours may be presented as partial completion of degree requirements. Students must enroll for thesis credit each term university facilities are used for the thesis project.

Students must follow the *Graduate School Handbook for Theses and Dissertations*, available in the University Store.

Every student who writes a thesis must successfully defend it in an oral exam administered by the student's committee composed of 3 members of the graduate faculty.

A draft copy of the thesis must be submitted to the Graduate School at the time of submission to committee. The final draft of the thesis must be acceptable to all members of the student's committee and recommended to the Graduate Dean for final acceptance.

Three copies of the master's thesis are required by the Graduate School, and the student should consult with the department chair and/or thesis adviser as to the number of additional copies required.

Comprehensive Examination for the Master's Degree

Before being recommended for graduation, every candidate for the Master's degree is required to pass a final comprehensive examination. The comprehensive should be administered *only to students in good standing* in the last term of coursework. It may be oral or written or both, at the discretion of the department and the result of the exam communicated to the Graduate School.

It is the student's responsibility to confer with the appropriate department regarding the time and place of the examination.

A student who does not perform satisfactorily on the first comprehensive examination will be given an opportunity to retake the examination at the next regularly scheduled examination period. The department will recommend appropriate coursework which the student may elect to take in preparation for retaking the exam.

If the student's performance on the second examination is unsatisfactory, the department committee will decide whether or not the third examination will be allowed. Prior to taking the third examination, the student must remedy deficiencies, which usually requires taking more course work. *If the student's performance is unsatisfactory on the third examination, the student will be dropped from the program.*

Time Limitation

All requirements for the degree must be completed in six calendar years. Courses more than six years old will not be allowed as credit toward the master's degree. There will be no exceptions to this policy. However, students may request the option of validating old courses as described in the previous section of the catalog.

Admission to Candidacy

Before an applicant will be officially admitted to candidacy for a master's degree, the student must have satisfied the following requirements:

1. The "Application for Admission to Candidacy for the Master's Degree" and an "Intent to Graduate Card" must be filed by the deadline published in the *Graduate*

School Catalog and in the *Schedule of Classes* and posted on department bulletin boards on campus. *There will be no exceptions made if candidacy forms are not submitted by the the stated deadlines.*

2. The student must have at least a "B" average on all coursework listed on the candidacy forms as well as any other graduate work undertaken at Memphis State University within the specified time limit (6 years). Grades of "D" or "F" are not accepted for any graduate degree credit but these grades will be computed in the GPA. No more than seven (7) hours of "C" will be counted toward degree requirements.

3. The program must include a minimum of 70% of the total required hours as 7000 level courses.

4. All requirements of the Graduate School, the student's college, and the department must be met.

5. The student's graduate work up to this point must be acceptable in quality and quantity to the major adviser, department chair and/or director of graduate studies and the Dean of the Graduate School.

It will be the responsibility of each graduate student to notify the Graduate Office of any changes in name or address. Students who are graduating will receive a letter explaining graduation ceremony requirements about one month prior to graduation.

Second Master's Degree

Students who hold a master's degree from Memphis State University may pursue a second master's degree with a different major if they are accepted by a department. No more than twelve (12) semester hours of the first degree may be applied toward the second degree. The department with which a student is studying will determine whether any credit from the former degree will be accepted toward the second degree. Any credit accepted toward the second degree must be within the regular time limit requirements for the master's degree.

Education Specialist

The Education Specialist degree is specially designed for the educator-practitioner who desires post-master's training but who does not wish to earn a doctorate. For additional information, please refer to the College of Education section of this catalog.

Minimum Requirements for Doctoral Degrees

Course Requirements

Course requirements for the doctoral degree vary with the department; see the appropriate section in this catalog. The student's program must be approved by the major department.

Time Limitation

No credit earned more than ten calendar years prior to the student's expected date

of completion of the Doctoral Degree will be applied toward meeting course requirements for the doctoral degree.

There will be no exceptions to this policy. However, students may request the option of validating old courses as described in the *Academic Regulations* of this catalog.

Residence Requirement

At least 9 hours of graduate coursework must be taken per semester for each of two successive regular (not summer) semesters to fulfill the residence requirement. *The residence requirement must be completed after the student has been admitted to the degree program.*

(See residency requirement in the College of Education section.)

Qualifying Examination

Each person seeking a doctoral degree may be required to take a qualifying examination administered by the department in which the student wishes to major. The examination may cover specialized and general knowledge of the major area as well as writing skill. The results of the qualifying exam should be used, in part, to plan the academic program. In order to be useful in program planning, the exam should be administered as early as possible — preferable in the student's first term. To be eligible to take this qualifying examination, the student must have on file acceptable scores on the graduate admissions test required by the Graduate School, transcripts of coursework showing an acceptable GPA, and be fully admitted to the Graduate School. Departments may hold additional requirements.

Advisory Committee

After admission to the doctoral program, the student should consult with the department chair and/or graduate coordinator to secure the appointment of a permanent major adviser, who is a full member of the Graduate Faculty, to serve as chair of the student's five-member Advisory Committee. The department chair, following consultation with the student and the major adviser, will then make a recommendation to the College Director of Graduate Studies concerning the appointment of graduate faculty or associate graduate faculty to the advisory committee. After approval by the Director of the Graduate Studies, these appointments will be forwarded to the Dean of the Graduate School for final approval.

Comprehensive Examination

After the student has completed all coursework required for the doctoral degree, or is enrolled in the last course of the program of studies, exclusive of the dissertation and is in good standing, the student must pass a comprehensive examination, written and oral, covering the major and collateral fields of study. Students who successfully pass the com-

prehensive exam and have submitted an approved Program of Studies are eligible to begin work on their dissertations. Students who do not pass the exam may, upon department approval, retake the exam. The department may require additional coursework. Results of the comprehensive must be reported promptly to the graduate school.

Dissertation

An acceptable dissertation is a requirement for all doctoral degrees. The dissertation must represent a significant scholarly effort which culminates in an original contribution to the field of inquiry. It should reflect the candidate's ability to conduct independent research and interpret in a logical manner the facts and phenomena revealed by the research. The dissertation must meet the specific regulations of the department in which the student is majoring and the Graduate School. Consult the publication entitled *Graduate School Handbook—Theses and Dissertations* for further information.

In order to remain in active status, candidates must register for dissertation credit each academic semester until the dissertation is completed. (The summer term will be considered an academic semester for this purpose.) This requirement may be waived by the Dean of the Graduate School upon request *for cause* by the department or college. Credit will be posted upon the completion and acceptance of the dissertation. No more than the total number of semester hours for dissertation required by the department will be counted towards the degree, even though the students may have registered for additional hours in order to remain in active status.

A draft of the dissertation must be submitted to the Graduate School at the time of submission to the committee. The final draft must be approved by *all* members of the committee and by the Graduate Dean.

A minimum of three and a maximum of five copies of the dissertation must be submitted for binding. The dissertation, which will be microfilmed, must be accompanied by an unnumbered abstract of not more than 350 words. The abstract will be published. Fees to cover the cost of microfilming and publishing are specified elsewhere and are to be paid by the student.

Admission to Candidacy

Before an applicant will be officially admitted to candidacy for a doctoral degree, the student must have satisfied the following requirements:

1. The "Application for Admission to Doctoral Candidacy" and an "Intent to Graduate Card" must be filed by the deadline published in the *Graduate School Catalog* and in the *Schedule of Classes*, and posted on department bulletin boards

on campus. There will be no exceptions made if candidacy forms are not submitted by the stated deadlines.

2. The student must have at least a "B" average on all coursework listed on the candidacy forms as well as any other graduate work undertaken at Memphis State University within the specified time limit (10 years). Grades of "D" or "F" are not accepted for any graduate degree credit but these grades will be computed in the GPA. No more than seven (7) hours of "C" will be counted toward degree requirements.

3. All coursework offered for the doctoral degree must have been completed within a 10 year time frame.

4. The student's entire program, including the dissertation, must be acceptable to the committee, department chair, and/or director of graduate studies, and the Dean of the Graduate School.

It will be the responsibility of each graduate student to notify the Graduate School Office of any changes in name or address. Students who are graduating will receive a letter explaining graduation ceremony requirements about one month prior to graduation.

Final Examination (Dissertation Defense)

After the completion of the dissertation and all other prescribed work for the degree, candidates will be given a final oral examination dealing primarily with the dissertation and its relation to the candidate's major field of study. This exam will be conducted by the student's five member Advisory Committee. If the student's performance on this examination is satisfactory as judged by the committee, all requirements for the degree will have been completed.

GRADUATE ASSISTANTSHIPS

GRADUATE ASSISTANTSHIPS

Graduate teaching and research assistantships are available in most of the academic areas of Memphis State University. Full-time assistants may anticipate \$4,500-\$15,000 in salary based on 20 hours of service per week. Graduate assistants who work **at least** 10 hours per week are classified as in-state students for fee paying purposes for the **term of their appointment as graduate assistants**. Non-resident assistants appointed for the preceding spring semester are eligible for in-state fees for summer, whether or not the student holds an assistantship in that summer term. Inquiries should be made to either the departmental chair or the coordinator of graduate studies of the appropriate department.

RESIDENT HALL ASSISTANTS

Area coordinators have the responsibility for a residence hall; apartments and salaries are negotiated. Resident advisers have hall responsibilities and receive room and \$150.00 per month. Inquiries should be sent to the director of Housing.

GRADUATE FELLOWSHIPS

Graduate student fellowship information can be obtained in The Graduate School, 315 Administration Building.

The **Van Vleet Memorial Fellowship** (\$10,000 plus fee waiver) established by Mrs. Harriet S. Van Vleet in honor of her late husband, McKay Van Vleet, is awarded annually to students enrolled in a graduate program leading to the Ph.D. in designated science areas.

The **Dixon Graduate Fellowship** in the amount of \$1,000, established by Clyde Dixon, is awarded annually to a worthy graduate student based upon academic achievement and seriousness of pursuit of the degree toward which the student is working.

The **Proctor and Gamble Minority Graduate Fellowship** in the amount of \$10,000 is awarded to an applicant fully admitted to a graduate program with preference given to a doctoral candidate.

The **Greater Memphis State, Inc. Graduate Fellowship**, established by Greater Memphis State, Inc., annually awards a fellowship to a full time doctoral student based on exceptional academic achievement.

The **Zonta Club of Memphis, Inc.** annually presents an award equivalent to full in-state tuition to a worthy graduate student, preferably a woman, based upon academic achievement and leadership skills.

The **Part-time Graduate Fellowship** is awarded to fifteen students (three from each of the five colleges) enrolled in at least three and no more than eight hours a

semester. The stipend is \$150 per semester and renewable up to five times.

The **Tennessee Board of Regents Graduate Minority Fellowship** is available to residents of Tennessee in selected disciplines. Selection is based on grade point average, entrance examination scores and leadership/extracurricular activities. The fellowship provides tuition and fees and a stipend equal to departmental assistantship stipends.

Applications for the following fellowships may be submitted to the Unit listed:

THE FOGELMAN COLLEGE OF BUSINESS AND ECONOMICS

The **Thomas and Ethel Hart Fellowship** in the amount of \$5,000 is awarded to a doctoral student majoring in business administration with interest in strategic/free enterprise management.

The **Dr. G. P. Racz Leadership Fellowship** in the amount of \$150 is awarded each semester to a full-time graduate student majoring in accounting. The recipient must exhibit outstanding leadership skills.

The **R. B. Sweeney Graduate Fellowship** in the amount of \$1,000 is awarded annually to a graduate master's student majoring in accounting. The recipient must have an undergraduate degree in accounting, and must have an undergraduate GPA of at least 3.50 or a GMAT score of at least 600.

The **Albert F. Wernet Memorial Fellowship in Finance** in the amount of \$5,000 is awarded annually to a doctoral student majoring in finance.

THE COLLEGE OF COMMUNICATIONS AND FINE ARTS

The **Olin F. Morris Fellowship** in the amount of \$15,000 is awarded to a graduate student majoring in journalism with an interest in broadcast management.

THE COLLEGE OF EDUCATION

The **Dr. R. Eugene Smith Fellowship** equivalent to in-state tuition is awarded

annually to a graduate student pursuing studies in higher education administration.

THE DEPARTMENT OF AUDIOLOGY AND SPEECH PATHOLOGY

The **AUSP Alumni Chapter Fellowship** is awarded each spring semester to a graduate student in Audiology and Speech Pathology. The recipient must demonstrate outstanding clinical skills and support of student and departmental activities.

The **Marion G. Evans/Exchange Club of East Memphis Fellowship** is awarded annually to graduate students training to work with the hearing impaired.

THE HERFF COLLEGE OF ENGINEERING

The **Herff Engineering Fellowship** is a \$6,500, one year, non-renewable award for graduate students in Engineering.

GRADUATE STUDENT ASSOCIATION

The Graduate Student Association represents all graduate level students enrolled in the university. The purpose of the organization is to serve the unique needs of the students engaged in graduate studies. Business is conducted by the executive board and the Graduate Student Council. Each department serving graduate students within the various colleges selects a representative to serve on the council. A student is selected by the organization to serve as a representative to the University Council for Graduate Studies and Research. The elected president holds a graduate assistantship in the graduate dean's office. Activities include a student orientation, social events, used book sales, special speakers and events, and an annual graduate student research forum. The GSA also awards grants to support graduate students who present original work at professional conferences.

3. EXPENSES

FEES AND CHARGES

GENERAL: The information in this section concerning tuition, fees, deposits, etc. is applicable only to students enrolled in The Graduate School. Similar information for students in the undergraduate colleges and The School of Law is available in the catalogs of those schools.

The listing of any fee or incidental charge in this catalog does not constitute a contract between the University and the student. **Because of rapidly changing conditions**

it may become necessary to alter a fee structure before the next edition of the *Catalog* is published. As a condition of registration, each student will pay the fees in effect the semester for which he or she registers.

All fees and charges will be assessed and calculated consistent with policies and procedures of the University and the Tennessee Board of Regents. Information presented in this *Catalog* is intended to cover the situations most students will encounter. The University may have additional policies and procedures by

which fees and charges are implemented or which apply to unusual situations.

INDEBTEDNESS TO UNIVERSITY: Policy of the Tennessee Board of Regents prohibits the enrollment of any person who owes the University any amount of money. All outstanding financial obligations to the University must be satisfied before the first day of classes to avoid deletion of the student from the class rolls. Tennessee law prohibits the release of grades, transcripts or diplomas of any person who has outstanding financial obligations to the University.

APPLICATION AND REGISTRATION FEE INFORMATION

APPLICATION FEE: Each student submitting an application for admission to the Graduate School must pay, at the time of submitting their first application, a one-time non-refundable fee of \$5.00. This fee will not be required of graduate applicants who have an undergraduate application on file at the University.

PAYMENT OF FEES AND DEBTS: Fees may be paid by cash, check, money order, or through the use of Visa or Mastercard. Fees may be paid as soon as the student receives a Class Schedule and Invoice Form. However, all fees must be paid by the deadline indicated on the Students Class Schedule and Invoice Form. All deadlines are noted in the Fee Deadline section and Term Calendar of the *Schedule of Classes*. Registration is not complete and students will not have their names placed on class rolls until after all fees are satisfied. Former students with outstanding financial obligations to the University cannot be re-enrolled until the obligations are satisfied.

MAINTENANCE FEE: All students, whether in-state or out-of-state, pay a maintenance fee. Graduate fees are \$88.00 per semester hour, not to exceed a maximum of \$902.00. Maintenance fees assessed are based on the course level, and the maximum fees will be the graduate maximum if a student is enrolled for any graduate hours.

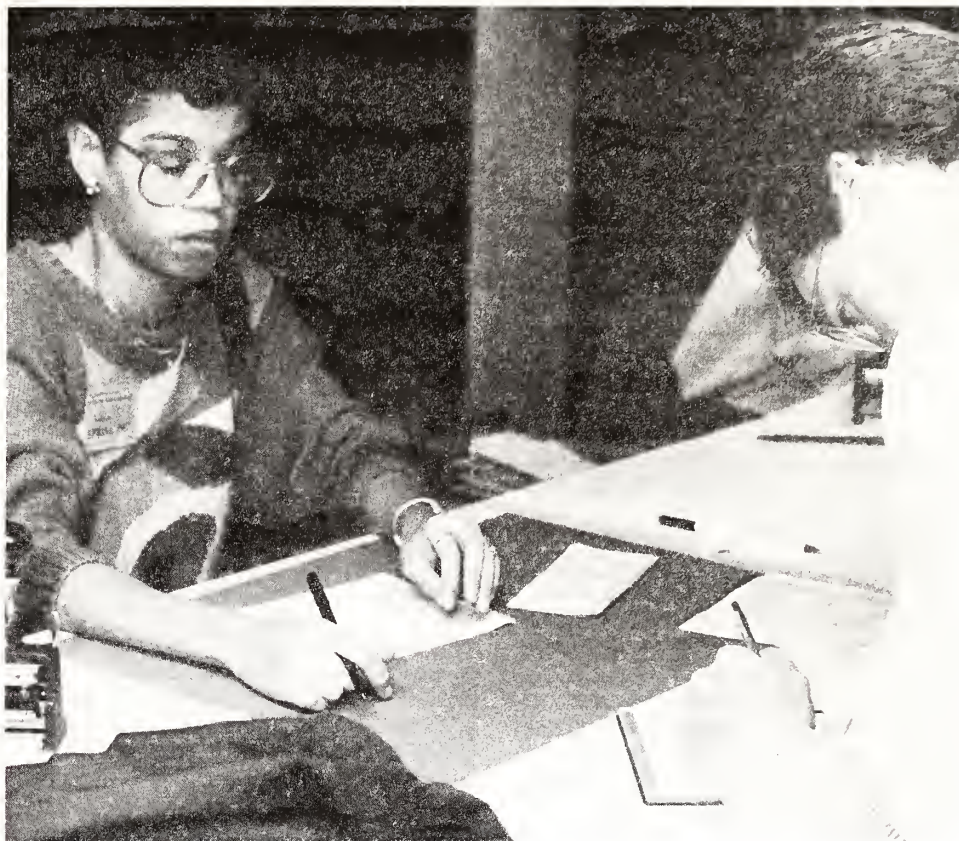
Undergraduate maintenance fees are \$63.00 per credit hour.

Fees for auditing courses are assessed on the same basis as fees for credit courses. Courses offered between terms, for concentrated periods during a term, or at specific locations, may be subject to fees on a per-hour basis only.

The University will usually collect the amount of fees due at the time of registration, and during the adding and dropping of classes, in accordance with the residency classification and fee rates in effect. After all enrollments are complete, any over-collections will be refunded, and students will be billed for under-collections.

THE SUMMER SESSION: The Summer Session consists of two separate terms of approximately six weeks each, plus extended terms for specified courses. Fees for the Summer Session are determined solely on a semester hour basis. The semester hour charge is \$88.00 for graduate courses for maintenance fees and an additional \$140.00 for out-of-state tuition.

TUITION: Students classified as out-of-state are charged an additional \$1,602.00 per semester for full-time students or \$140.00 per semester hour for part-time students. Thus an out-of-state full-time student is charged \$2,504.00. An out-of-state student who is enrolled part-time is charged \$228.00 per semester hour.



The Office of Admissions and Records is charged with the responsibility of assigning a residency classification to each student using regulations provided by the Board of Regents. The student may appeal the decision to the Committee on Residency. Residency regulations of the Board of Regents and information on appeals procedures are available in the Office of Admissions and Records.

FEES FOR TOTALLY DISABLED PERSONS AND PERSONS OVER 60 YEARS OF AGE:

Persons suffering from permanent disability which totally incapacitates them from working at an occupation which brings an income, and persons who will become 60 years of age or older during the academic semester in which they begin classes, and who are domiciled in Tennessee, may AUDIT courses at Memphis State University without paying tuition charges, maintenance fees, student activity fees, or registration fees. Admission to AUDIT will be limited on an individual classroom basis according to space availability.

Any person who is totally disabled, and persons who will become 65 years of age or older during the academic semester in which such persons begin classes, and who are domiciled in Tennessee, may enroll for courses for CREDIT at the cost of \$44.00 per graduate semester hour, not to exceed \$75 per semester. The University Health Services shall examine certification of permanent disability (not the applicant) and determine the eligibility of the applicant under this legislation.

Inquiries concerning these programs may be addressed to the Registration Office, Room 161, Administration Building.

STUDENT ACTIVITY FEES: All students enrolled for one to five credit hours will pay a student activity fee of \$3.00 per hour. All students enrolled for six or more credit hours will pay a student activity fee of \$45.00.

Students paying the fee for six or more hours are entitled to admission to home athletic events and certain health services, concerts, plays, social and other student-sponsored activities, and a subscription to the student newspaper, *The Helmsman*. Student activity fees for the summer session are determined solely on a semester hour basis.

REFUND OF MAINTENANCE FEES, OUT-OF-STATE TUITION, MUSIC FEES:

The following refund percentages apply to students who withdraw from the University or who drop to an hourly load below full-time.

A. 100% Refund: (1). A full (100%) refund of these fees will be provided for courses cancelled by the University. (2). A full (100%) refund of these fees will be provided beginning at the moment of Priority/Continuous Registration and extending until the conclusion of Regular Registration. (3). A full (100%) refund of these fees will be provided in case of death.

B. 75% Refund: A 75% refund of these funds will be provided Registration with the conclusion of Regular Registration and

extending for a period of time as noted in the term calendar for each semester.

C. 25% Refund: A 25% refund of these fees will be provided beginning at the expiration of the 75% refund and extending for a period of time as noted in the term calendar for each semester.

REFUND OF STUDENT ACTIVITY FEES:

A. A full (100%) refund of the Student Activities Fee will be provided beginning at the moment of Priority/Continuous Registration and extending until the conclusion of Regular Registration.

B. During the normal 75% refund period, a 90% refund of the Student Activity Fee will be provided.

C. During the normal 25% refund period, a 75% refund of the Student Activity Fee will be provided.

D. After the end of the normal 25% refund period, there will be no refund of the Student Activity Fee.

The University refund policy is based entirely upon the official date of the withdrawal or change of course which would result in a refund. Refunds beyond the specified date or percentage will not be made for reasons such as employment conflicts, health or medical problems, moving out of town, or other reasons which are beyond the University's control or responsibility.

NOTE: The dates for these refund periods are found in the term calendar in the *Schedule of Classes*. The refund period ends earlier than the final deadline for dropping a course or withdrawal.

Refunds will be processed beginning approximately two weeks after classes begin and usually should be completed five weeks after classes begin.

The University will offset against proposed refunds any amount owed by the student to the University.

STUDENT HOUSING

RESIDENCE HALLS: Charges for rooms in University residence halls are indicated below. For information concerning application for rooms, contact the Office of Residence Life. There is a request form in the back of this *Catalog*.

Application Procedures: Applications for residence hall space may be obtained from the Office of Residence Life, Memphis State University, Memphis, TN, 38152. Because spaces are allocated by date of receipt, completed applications accompanied by the required \$100 application/reservation deposit should be returned to the Office of Residence Life as soon as possible. Checks or money orders should be made out to Memphis State University; please do not send cash.

Receipt by the Office of Residence Life of the Housing application and \$100 check

or money order, however, does not guarantee admission to the University or to a residence hall. THE DIRECTOR OF RESIDENCE LIFE RESERVES THE RIGHT TO REFUSE ANY HOUSING APPLICATION, TO CHANGE OR CANCEL ANY ASSIGNMENT, OR TO TERMINATE A RESIDENT'S OCCUPANCY, FOR JUSTIFIABLE CAUSE.

Contract Period and Conditions: Fall assignment/contracts are for the full academic year (fall and spring semesters). Fall residents wishing to petition for release from their contract for the spring semester must do so in writing by the second Friday in November. Residents who cancel after this date, but prior to claiming their key for the spring semester, will forfeit \$50 of their \$100 application/reservation deposit. Residents who fail to cancel by 4:30 P.M. on the second day of undergraduate registration will forfeit the entire \$100 deposit. The application/reservation deposit, once submitted with the application, covers your initial term of occupancy and all subsequent terms of occupancy and continues until such time as it is cancelled in writing. There will be no penalty if written cancellation is received prior to the published deadline for any specific contract period.

Cancellation Policy: Full deposit and pre-payment of rent will be refunded if: (1) the institution is notified a minimum of 30 calendar days prior to the first official day of registration for the first semester in which the contract is in force, (2) the student is prevented from entering the University because of personal medical reasons confirmed in writing by a licensed physician, (3) residence hall space is not available, or (4) the student is denied admittance or re-admittance to the University. Full refund will be made in the case of death. NO REFUNDS WILL BE MADE FOR OTHER THAN THE ABOVE CONDITIONS.

New applicants who fail to cancel by the deadline referred to in (1) above but before 4:30 P.M. on the first day of undergraduate registration (NO SHOW DATE) will forfeit \$50 of their \$100 deposit, but will not be subject to any other penalties. New applicants who fail to cancel by 4:30 P.M. on the first day of undergraduate registration will forfeit their entire \$100 deposit. (This is applicable to both the fall and spring semesters.)

Refund of Residence Hall Rent: Refunds of residence hall rent after registration will be prorated on a weekly calendar basis. When the student is forced to withdraw from the residence halls: (1) because of personal medical reasons confirmed by a licensed physician in writing, or (2) at the request of the institution for other than disciplinary reasons. Full refund will be made in the case of death.

For reasons other than the above stated, the following procedure shall apply: 75% of fees will be refunded for withdrawal from the residence halls for a period of approximately 14 calendar days beginning with and inclusive of the first official day of classes or within an equivalent period for a short-term course. 25% of fees will be refunded following expiration of the 75% period, for a period of time extending approximately 25% of the time, covered by the term. NO REFUNDS WILL BE MADE FOR OTHER THAN THE ABOVE CONDITIONS.

Dormitory	Rate Per Room	Semester Rate***
Browning	Double	\$540
	Single	750
Hayden	Double	795
	Single	1100
McCord	Double	565
	Single	785
Mynders	Double*	610
	Small Single*	800
	Medium Single*	835
	Large Single*	860
	Large Single**	885
Newport	Double*	740
	Single*	1030
Rawls	Double	660
	Single	920
Richardson Towers N.	Double*	720
	Single*	1000
Richardson Towers S.	Double*	720
	Single*	1000
Robison	Double	660
	Single	920
Smith	Double	565
	Single	785
West	Double	565
	Single	785

*Semi-private bath

**Private bath

***Fees quoted are for the 1989-90 Academic Year and are subject to change.

STUDENT FAMILY HOUSING: The University has 126 apartments for married students located on South Campus approximately one mile from the central part of the campus. These are 70 two-bedroom and 56 one-bedroom apartments. Some apartments are built specifically for paraplegic students. All apartments are furnished with electric stove, refrigerator, carpeting and garbage disposers.

The monthly rental rates are: one bedroom apartment — \$275.00; two bedroom apartment — \$315.00. Electrical utilities are paid by tenant. (Rates quoted are for 1989-90 academic year and are subject to change).

Application forms may be obtained from the Office of Residence Life in Room 011, Richardson Towers. A \$100 deposit is required when the application is submitted.

MISCELLANEOUS FEES

ADDING AND DROPPING COURSES: A fee of \$5.00 will be charged, beginning with the first day of the Late Registration period, for each Change of Course form processed, regardless of the number of course or section changes included on the form.

AUTOMOBILE REGISTRATION: Each person who expects to operate and park

any motor vehicle on the campus must purchase an official permit, which is valid for the semester, and register the vehicle in the Security Office (Room 151, Administration Building). Proof of ownership must be presented when registering the vehicle, and the student's registration receipt must be presented to receive the parking permit. Parking permit fees range from \$10 to \$50, based on the level of parking desired.

CREDIT BY EXAMINATION OR PLACEMENT EXAMINATION: The fee for taking an examination for credit is \$45.00 minimum and as additional \$15.00 for each credit hour in excess of three (3) for which credit is awarded. The fee is non-refundable and must be paid prior to the examination. A fee of \$15.00 per credit hour will be charged when an application for credit is made under the Credit by Placement Examination policy.

GRADUATION FEE: Each candidate for a degree from Memphis State University pays a \$25.00 fee to cover cost of the diploma, rental of cap and gown, and incidentals connected with the commencement exercises. This fee must be paid thirty days before graduation.

DISSERTATION: A student completing the doctorate will be required to pay the \$7.50 fee for binding each copy of the dissertation and in addition a fee of \$55.00 to defray the cost of microfilming the dissertation and publishing the abstract. A minimum of three copies are required, and the student should consult with the department chair and/or dissertation adviser as to the number of additional copies required.

IDENTIFICATION CARDS: The University issues to each student an identification card which bears the student's photograph and social security number. The card remains the property of the University and will be surrendered upon request of a University official.

Inquiries about student identification cards should be made in the I.D. office, Room 176, Administration Building. The card, is required for the borrowing of library books, admission to or approval to pick up or purchase student tickets to athletic and social events, the sale of used textbooks, and other official purposes. The card is also required to gain admission to the Registration Center each registration period.

Part-time students who are enrolled for at least six semester hours of credit courses will be given full-time I.D. card privileges.

The I.D. certification is renewed during registration each semester the student is enrolled. (The summer sessions are considered as a semester.)

If an I.D. card is lost or stolen, the student has twenty four hours to file the proper report with the I.D. office and/or the Security Office. In all cases, a student will be required to have a placement card made. The replacement fee is \$10.00 for a card that has been damaged, stolen, or lost. Students will be charged a \$2.00 fee to make any change in data on the card.

Fraudulent use of the I.D. card will result in disciplinary action. The card is issued

to the individual student and may not be loaned to another person for any reason. Each student should have no more than one (1) student identification card at a time.

LABORATORY DEPOSITS: Certain courses in chemistry require deposits from \$10.00 to \$20.00 per semester, depending upon the course. Any unused portion of these deposits will be refunded.

LATE REGISTRATION: Students who do not complete registration (including the payment of fees) by the conclusion of Regular Registration will be charged \$10.00 for any late registration.

MEALS: The University cafeterias, Student Center and vending areas, open to all students, provide wholesome food at reasonable prices. The cost of meals per student is estimated at \$1,600 per academic year.

COURSES IN APPLIED MUSIC: The fee for applied music is \$30.00 per semester for each one-half hour lesson.

MUSIC LOCKER DEPOSIT: Music students are required to have a locker for storage of University-owned musical instruments or equipment. Personal instruments may also be stored in lockers. A deposit of \$3.00 for one semester or \$4.00 for two semesters is required on each locker issued. This deposit, less a service charge of \$1.50 per semester, will be refunded upon return of the lock. Students will be expected to pay for any damages.

PHYSICAL EDUCATION LOCKER AND TOWEL FEE: Students enrolled in physical education courses must pay a fee of \$4.00 for the locker and towel issued them. Students must provide their own lock.

RETURNED CHECKS/CHARGE CARD DRAFTS: It is expected that a check or draft given to the University, for any reason, will be honored by the bank on which it is drawn. A check or draft dishonored by the bank on which it is drawn may be presented a second time at the discretion of the University. A \$15.00 returned check/draft charge will be assessed for all checks/drafts returned. Returned checks/drafts, used in payment of registration fees, which are not promptly redeemed, will result in the deletion of the student from the class rolls.

NO-MORE-CHECKS STATUS: The privilege of making payments for fees and charges by personal check and check cashing privileges will be revoked for any student who has had more than one returned check/draft within a twelve month period for a period of one (1) year from the date the last check/draft is redeemed. A student will not be permitted to pay registration fees by check if any previous check in payment of registration fees has been returned.

THESIS: Students will be required to present a receipt from the Bursar's Office to the Graduate Office showing that they have paid a fee of \$7.50 for each thesis

which is to be bound. A minimum of three copies are required. Students should consult with their department chair and/or thesis adviser as to the number of copies required.

TRANSCRIPTS: There is no fee for transcripts. However, the student will be charged \$1.00 for each official transcript over the maximum of five (5) per request. Transcripts are issued only at the request of the student in person or by letter. No transcript will be provided for a student who has any unfulfilled obligation to the University.

SUMMARY OF EXPENSES

	Per Hour (Summer and Part-Time)	Fall and Spring Semester Per Semester (Full-Time)
Graduate:		
In-State Maintenance	\$88.00	\$902.00
Out-Of-State Tuition	\$140.00	\$1,602.00
Out-Of-State Total	\$228.00	\$2,504.00
Activity Fee	\$3.00	\$45.00
Student Housing: (See listing earlier in this section.)		
Applied Music Courses: (See information earlier in this section.)		
Incidental Charges:		
Adding or dropping courses, per form		5.00
after Regular Registration		
Application for admission, first		5.00
application		
Automobile Registration, per automobile		10.00
(Local Parking)		25.00
Diploma		
Late registration after regular		10.00
registration period		
Transcripts, per copy after first five copies		1.00
per request		4.00
P.E. locker and towel, per semester		
Deposits:		
Dormitory rooms		
(refundable less charges, upon		100.00
termination of occupancy)		
Laboratory breakage		Variable
(refundable less charges)		
Music locker deposit, per semester		3.00
per year		4.00

Additional Charges
The University reserves the right to increase the charges listed herein or to add new ones whenever such increases or additions are found to be necessary.

APPEAL PROCEDURES

APPEAL PROCEDURES FOR FEES AND REFUNDS: A student may appeal the assessment, application, calculation or interpretation of any University fee, charge, deposit, or refund, or any University action connected with fees and charges. Questions should generally be discussed with personnel in the Bursar's Office. If a student is not satisfied with the resolution made by the Bursar's Office, a written appeal, on forms available in the Bursar's Office, can be made to the Associate Vice President for Finance; this determination may be appealed to the Vice President for Business and Finance; this determination may be appealed to the President of the University. All appeals must be made in writing within ten (10) days of the previous decision. Traffic fines are subject to a separate appeal procedure.

4. DEGREE PROGRAMS AND COURSES

COLLEGE OF ARTS AND SCIENCES

WILLIAM E. CARPENTER, Ph.D.,
Dean

JOHN R. HADDOCK, Ph.D.,
Director of Graduate Studies

GRADUATE ACADEMIC PROGRAMS

Department	Major	Concentration Within Major	Degree Offered
Anthropology	Anthropology	(1) Urban Anthropology (2) Medical Anthropology (3) Archaeology	Master of Arts (M.A.)
Biology	Biology	Immunohematology	Master of Science (M.S.)
		(1) Botany (2) Cell Biology (3) Invertebrate Zoology (4) Microbiology (5) Vertebrate Zoology	Master of Science (M.S.) Doctor of Philosophy (Ph.D.)
Chemistry	Chemistry	(1) Inorganic (2) Analytical Chemistry (3) Organic (4) Physical Chemistry (5) Biochemistry	Master of Science (M.S.) Doctor of Philosophy (Ph.D.)
Criminology and Criminal Justice	Criminal Justice		Master of Arts (M.A.)
English	English	(1) Linguistics (2) Literature (3) Writing (a) Creative (b) Professional (4) English as a Second Language	Master of Arts (M.A.)
	Creative Writing		Master of Fine Arts (M.F.A.)
Foreign Languages and Literatures	Romance Languages	(1) French (2) Spanish	Master of Arts (M.A.)
Geography and Planning	Geography		Master of Arts (M.A.) Master of Science (M.S.)
	City and Regional Planning		Master of City and Regional Planning (M.C.R.P.)
Geological Sciences	Geological Sciences	(1) Geology (2) Geophysics	Master of Science (M.S.)
History	History		Master of Arts (M.A.) Doctor of Philosophy (Ph.D.)
Mathematical Sciences	Mathematics	(1) Applied Mathematics (2) Mathematics (3) Statistics (4) Computer Sciences	Master of Science (M.S.)
		(1) Mathematics (2) Applied Statistics (3) Computer Science	Doctor of Philosophy (Ph.D.)
Philosophy	Philosophy		Master of Arts (M.A.) Doctor of Philosophy (Ph.D.)
Physics	Physics		Master of Science (M.S.)
Political Science	Political Science		Master of Arts (M.A.)
	Public Administration	(1) Urban Management and Planning (2) General Public Administration (3) Health Services Administration (4) Human Resource Administration	Master in Public Administration (M.P.A.)
Psychology	Psychology	General Psychology	Master of Science (M.S.)
	School Psychology		Master of Arts (M.A.)
	Psychology	(1) Clinical Psychology (2) Experimental Psychology	Doctor of Philosophy (Ph.D.)
Sociology and Social Work	Sociology		Master of Arts (M.A.)
Interdisciplinary	Mathematical Sciences		Master of Science (M.S.)
Graduate School	Individual Studies	(by contract)	Master of Arts (M.A.) Master of Science (M.S.)

The College of Arts and Sciences contains fourteen departments, each of which offer graduate degrees. Candidates for each of these degrees must pursue a curriculum plan which has the approval of their major adviser, the department chair, and the Graduate Dean. Every graduate student is expected to comply with the general requirements of the Graduate School (see Chapter 1 of this *Catalog*) and the program requirements of the degree being pursued (see departmental listings in this chapter).

MASTER'S DEGREES

The programs for the **MASTER OF ARTS** degree are generally open to those who have completed the Bachelor of Arts degree. Others may enroll in these programs if undergraduate prerequisites are met. Students majoring in the following areas may pursue in the Master of Arts degree: Anthropology, Criminal Justice, English, Geography, History, Philosophy, Political Science, Psychology, Romance Languages, and Sociology (see departmental listings).

The **MASTER OF FINE ARTS IN CREATIVE WRITING** is a degree program (48 semester hours) for students who plan to pursue a career in fiction writing or poetry. Admission to the program is based primarily on a portfolio of work in the student's chosen genre. The course work includes both literature and writing classes, and culminates with submission of a publishable collection of fiction or poetry as the thesis.

The program for the **MASTER OF PUBLIC ADMINISTRATION** degree is generally open to students with preparation in the social sciences or in business courses. Students working toward this interdisciplinary degree complete a core curriculum in public administration courses and a concentration in one of the following areas: General Public Administration, Health Services Administration, Human Resource Administration, and Urban Management and Planning. (see listing for Political Science).

The programs for the **MASTER OF SCIENCE** degree are generally open to students with a science background. Students enrolled in the following areas may pursue the Master of Science degree: Biology, Chemistry, Geography, Mathematical Sciences, Physics, and Psychology (see departmental listings).

The **MASTER OF CITY AND REGIONAL PLANNING** is a professional degree for students interested in government and business careers. Students complete the following: a core curriculum of 30 semester hours; a 15 hour elective curriculum with possible subjects in economic development planning, urban design, land use and transportation planning, planning information systems, housing and community development, planning law, and environmental planning; and, a 3 hour Capstone Project which integrates one or more elective subjects with the Core curriculum.

The purpose of **MASTER OF SCIENCE IN THE NATURAL SCIENCES** degree is to design master's degree programs from existing graduate courses for individuals whose interests and needs are best served by individually planned programs. The Natural Science Program will serve primarily those students who have a specific educational goal and who wish to organize a degree program composed of existing courses but not found among current concentrations. Coursework from at least three natural science departments must be included in each degree program.

ADMISSION

1. The student must be fully admitted to the Graduate School. Admission to degree candidacy is contingent upon approval of the degree plan by the Natural Sciences Committee.
2. Students on probation are not eligible for this program.
3. Students who desire to participate in the program may not normally apply more than nine hours of graduate work undertaken before admission to the program, although exceptions may be granted by the student's advisory committee and Natural Sciences Committee.

DEGREE PROGRAM

1. The student must formalize a statement of personal and/or professional goals which will serve as the basis

for the design of the program. This statement and a formal degree plan must be submitted for endorsement by the student's committee and for approval by the Natural Sciences Committee.

2. In order for the degree plan to qualify as a Natural Science major, it must differ significantly from the requirements for an existing concentration.
3. The degree program must contain a minimum of 33 semester hours, of which at least 23 must be at the 7000 level or above.
4. A thesis, project, or other integrative activity which enhances the program theme must be included.
5. Changes of more than seven semester hours in the approved degree plan require the approval of the student's advisory committee and the Natural Sciences Committee.
6. The student will be required to pass a written comprehensive examination if a thesis is not written.

PROGRAM COMMITTEE

The student's program committee will be composed of three graduate or associate graduate faculty members approved by the Director of Research and Graduate Studies in the College of Arts and Sciences. The committee will assist the student in developing the degree plan, will serve in an advising capacity for the student, and will conduct the comprehensive examination or the defense of thesis.

ACADEMIC REGULATIONS

The student is subject to all academic regulations of the Graduate School.

For mathematics option see listing under Mathematical Sciences.

DOCTOR OF PHILOSOPHY DEGREE

The Doctor of Philosophy Degree is offered in the following departments within the College of Arts and Sciences: Biology, Chemistry, History, Mathematical Sciences, and Psychology. General requirements for the Ph.D. degree are outlined in these departmental listings. More detailed information about prerequisites, course work, research requirements, etc., may be obtained from the chair or graduate coordinator of the respective departments, or from the college level director of graduate studies. Any of these departments may choose to admit a student to doctoral study without requiring the master's degree as a prerequisite.

ANTHROPOLOGY

STANLEY E. HYLAND, Ph.D., *Chair*
Room 124, Clement Hall

LINDA A. BENNETT, Ph.D.,
Coordinator of Graduate Studies

I. The Department of Anthropology offers a Master of Arts degree with a major in Anthropology with the purpose of training students as competent practicing anthropologists in the fields of multiethnic community organization, health care delivery systems, contract research and service in Archaeology and Museum Operation, and several aspects of educational administration.

II. Concentrations are available in Urban Anthropology, Medical Anthropology, and Archaeology. Each student

will plan his or her program in consultation with his or her major adviser.

III. M.A. Degree Program

A. Program Admission

To meet departmental requirements for admission, the student must submit a letter of intent, a statement of purpose, and three letters of recommendation. In addition to their undergraduate academic record, applicants will be considered on the basis of their work experience and career plans.

B. Program Requirements

1. A total of 30 semester hours course work plus satisfactory performance in a practicum (Anthropology 7985 — 6 hours credit) for a total of 36 semester hours.
2. Satisfactory completion of the core curriculum in one of the three concentrations.
3. Each student will be required to gain competence in quantitative methods relevant to his or her area of

specialization. Students without previous background in quantitative methods will be required to take at least 3 hours in this area, selected from a wide range of existing graduate-level courses to best fit individual program needs.

4. At least 18 semester hours of courses must be taken at the 7000 level.
5. Satisfactory performance on a comprehensive exam.
6. The Master's Degree in Anthropology is an interdisciplinary degree and students are encouraged to take up to 9 semester hours of their work outside of the Department of Anthropology, depending upon their area of interest and the nature of previous work experience.

E010 ANTHROPOLOGY (ANTH)

6051. Anthropology and Education. (3). (Same as Foundations of Education 6051) An advanced study

of the cultural transmission process with emphasis on identifying differing behavioral, cognitive and learning styles of various ethnic groups within American society and selected third world countries. Encounters of U.S. subcultural groups with the public education system are examined. **PREREQUISITE:** Permission of instructor.

6065. Contemporary Anthropological Theory. (3). Contemporary growth of theories and methods in anthropology. **PREREQUISITES:** ANTH 1100 and 1200; or permission of instructor.

6111. Human Adaptations (3). Human populations and their variability; examination of the human adaptations in locomotion and manipulation, facial structure, the brain and language, and reproduction; comparisons to the anatomy, physiology, and behavior of other primates.

6251. Psychological Anthropology. (3). (6751). Comparison of factors involved in analysis of personality as contrasted to culture; interaction of these factors; problems of studying personality crossculturally.

6252. Economic Anthropology. (3). Comparative analysis of economic systems and their functional relationships to other cultural institutions; production, distribution, and consumption in non-literate groups; concepts of wealth, value, property, and ownership. **PREREQUISITE:** ANTH 1200 and at least one survey or area course in ethnology; or permission of instructor.

6253. Anthropology of Religion. (3). Comparative analysis of religious systems and their functional relationships to other cultural institutions; interrelations of myth, magic, and ritual; types of religious institutions and religious practitioners.

6255. Applied Anthropology and Development. (3). Cross-cultural review of processes of change, grassroots development and planning in industrialized world; models of change, specializations in applied anthropology, and development of public policy on international issues of housing, education, health, and economic development.

6301. Archaeology of North America. (3). Description and distribution of prehistoric cultural remains in North America north of Mexico. Major regional sequences, extending from the earliest evidences of human occupation until historic times.

6311. Archaeological Theory and Method. (3). History of archaeology and the development of a conceptual framework for archaeological data collection and interpretation; current theories and methods including the use of allied specialists.

6325. Archaeological Field Techniques. (3). Field excavation, specimen preparation, use of survey instruments and photography, map making and archaeological record keeping. May be repeated for a maximum of 6 hours credit. **PREREQUISITE:** permission of instructor.

6330-39. Special Topics in Regional Archaeology. (3). Analysis of selected topics in archaeology of specific region. May be repeated for a maximum of six hours credit.

6351. Evolution of Civilization. (3). Comparative investigation of the origins of civilization in the Old and New Worlds. Development and study of models to explain the cultural, social, political, and other changes that lead to and define civilization. **PREREQUISITE:** ANTH 1200 or permission of the instructor.

6370. Historic Archaeology. (3). Review of the contributions of archaeologists to historical research. The methods and techniques of archaeologists as required and modified by the excavation and interpretation of historic materials. The allied specialties unique to Historic Archaeology including documentary investigations and the conservation and restoration of existing structures.

6380. Museology. (3). (Same as Art 6380). The history and development of museums; mandate and variety of institutions; significant research facilities; historical and contemporary collections; and the educational roles of museums in contemporary society.

6382. Museum Operation. (3). (Same as Art 6382). Basic aspects of museum organization, management, exhibit planning and execution, and maintenance of collections and records.

6411. Urban Anthropology. (3). Anthropological studies of pre-industrial and industrial cities. Urbanization, movements of social transformation and other processes of adjustment to an urban milieu. Urban

slums, ethnic enclaves, and housing developments in cross-cultural perspective. Urban and social kinship and social organization. Urban community development. Urban research techniques.

6420. American Folklore. (3). Selected genres of American folklore, including folk religion and belief, folk medicine, folksong and music, narrative and humor (jokes and riddles). Comparisons to other cultures. Emphasis on role of folklore in maintenance of tradition, in social change, and in concept of culture.

6511. Medical Anthropology. (3). Cross-cultural analysis of bio-behavioral components of infectious, nutritional, genetic, chronic and psychiatric diseases. Individual and cultural reactions to medical care, professionals and health care delivery systems.

6521. Folk Medicine in the U.S. (3). Medical alternatives to the standard health care system. Concepts of illness associated with such practices as the use of medicinal plants, faith healing, chiropractic. Clinical effectiveness of folk herbal medicine and psychotherapy. The health professional's role in caring for persons with different perceptions of health and disease will be emphasized.

6531. Alcohol and Culture. (3). Cross-cultural comparison of alcohol-use patterns and alcoholism in Western and non-Western societies, including distinctive beliefs, rituals, and meaning of alcohol within different ethnic and national settings, and questions about applied work in the field.

6541. Nutritional Anthropology. (3). Human nutrition in cross cultural perspective. Basic nutritional requirements. Interrelations of dietary behavior with resource availability and with cultural attitudes regarding nutritive and health values for foods. Dietary aspects of acculturation and culture change. Methodology in the assessment of nutritional status and nutritional insufficiencies. Exemplary case studies.

6551. Culture and Childbirth. (3). Review of biological, environmental, social and cultural factors influencing human reproduction; comparison of individual, community and clinical approaches to fertility, birth control, pregnancy, birth and post-partum care; evaluation of alternative delivery systems in Western and non-Western societies.

6561. Cultural Context of Deviant Behavior. (3). Review of perceptions of normality in different societies, cultural definitions of and responses to deviance, promotion and discouragement of inappropriate behavior; evaluation of mental illness, violence, drug abuse, cannibalism, suicide, sexual practices and everyday behavior in relation to cultural definitions of normality.

6990-99. Special Topics in Anthropology. (3). May be repeated for credit when topic varies.

7075. Methods in Anthropology. (3). Critical examination of field methods and research designs in selected areas of anthropology. Major trends in contemporary anthropological research as a preparation for applied or thesis research.

7076. Techniques of Anthropological Data Analysis. (3). Construction and analysis of data bases developed from ongoing anthropological projects; review of frequently used statistical techniques in anthropological literature, hypothesis testing, and methods of presentation. **PREREQUISITE:** ANTH 7075 or permission of instructor.

7100. Seminar in Biocultural Anthropology. (3). Topics include principles of human genetics, the biological and cultural aspects of race, the hereditary and environmental factors in modern human variation, medical and nutritional anthropology.

7200. Seminar in Cultural Anthropology. (3). Topics include the nature of culture and its various aspects including language, social organization, economics, technology, the development of civilization, and the process of urbanization.

7311. Public Archaeology. (3). Roles and responsibilities of the archaeologist in contract and salvage work, in museum research and administration, and in the public dissemination of archaeological information. A review of relevant state and federal legislation.

7321. Archaeological Field Control. (3). (6321). Methods of dealing with archaeological field problems; individual instruction in collection, recording, and field analysis of both historic and prehistoric archaeological data.

7380-89. Special Topics in Archaeological Analysis. (1-3). Topics in Public Archaeology. No more than six hours may be counted toward degree requirements in Anthropology.

7390-99. Special Topics in Museology. (1-3). Topics in site interpretation/museology. No more than six hours may be counted toward degree requirements in Anthropology.

7411. Urban Anthropology in the Mid-South. (3). Application of anthropological theory to community change in Memphis and small cities of the Mid-South. The effects of new technology, transportation, labor organizations and government programs.

7490-99. Special Topics in Urban Anthropology. (3). Topics of special interest in Urban Anthropology. No more than six hours may be counted toward a degree in Anthropology.

7511. Anthropology of Health Care Professions. (3). Roles of the various health professions in the delivery of medical care with emphasis on the perception of these roles by racial or ethnic groups in the Mid-South. Lectures by medical professionals and administrators.

7590-99. Special Topics in Medical Anthropology. (3). Topics in Medical Anthropology. No more than six hours may be counted toward degree requirements in Anthropology.

7975. Directed Individual Readings. (1-3). Intensive guided study of original data in areas selected by advanced students and accepted by the staff. **PREREQUISITE:** Permission of staff.

7980. Directed Individual Research. (1-3). Intensive guided study of original data in areas selected by advanced students and accepted by the staff. Preparation for publication. **PREREQUISITE:** Permission of chair and the designated staff.

†7985. Anthropological Applications. (3, 6). Supervised practical experience in the application of anthropological principles in an agency or facility appropriate to urban, medical and nutritional anthropology, mental health or archaeology.

†Grades of S, U, or IP will be given.

BIOLOGY

JAMES F. PAYNE, Ph.D., *Chair*

Room 201, Life Sciences Building

MELVIN L. BECK, Ph.D., *Coordinator of Graduate Studies*

I. The Department of Biology offers the Master of Science and Doctor of Philosophy degrees with a major in Biology and concentrations in Botany, Cell Biology, Invertebrate Zoology, Microbiology, and Vertebrate Zoology. A concentration in Immunohematology with a major in Biology for a Master of Science degree is also available.

II. M.S. Degree Program

A. Program Admission

1. An overall minimum grade point average of 2.50 at the undergraduate level.
2. Scores for the Aptitude and Advanced Biology portions of the Graduate Record Examination. A combined score of at least 800 is required on the Verbal and the Quantitative portions (minimum of 400 on each) of the Graduate Record Examination.
3. Two letters of recommendation.

B. Program Requirements (Thesis)

1. A minimum of 30 semester hours beyond the baccalaureate degree is required.
2. Biology 7000, 7200, 7600, and 7996. Attendance in seminar is mandatory. Biology 7000 must be completed during the first year of residence; Biology 7200 before the last semester; and Biology 7600 in the last semester.
3. The maintenance of a grade point average of 3.0. Continuation of a student who makes a "C" or below is at the discretion of the student's Advisory Committee.

4. A written examination covering subject matter designated by the advisory committee will be administered once each semester and during the summer term on a date published by the department.

5. Presentation of research (7600) and a thesis (7996) as approved by the student's Advisory Committee.

6. Final oral examination.

C. Program Requirements (Non-thesis)

1. A minimum of 33 semester hours of graduate courses. The total number of semester hours required for graduation will be determined by the student's Advisory Committee based on academic background. No more than 3 semester hours can be satisfied by Biology 7092 or 7093.

2. Biology 7200. Attendance in seminar is mandatory. Credit of 1 semester hour will be earned during the semester the student presents the Biology 7200 seminar.

3. The maintenance of a minimum grade point average of 3.0. Continuation of a student who makes a "C" or below is at the discretion of the student's Advisory Committee.

4. Final written and oral examinations which will be administered by the student's Advisory Committee during the final semester of residence.

When a student is enrolled in the INTERDISCIPLINARY MASTER OF SCIENCE program, graduate credit will be given only to those courses which are open to all graduate students. Biology may be used as a collateral area provided the student has the necessary undergraduate requirements.

III. Ph.D. Degree Program

A. Program Admission

1. The prospective doctoral student must normally hold a master's degree from a recognized institution. However, a student may petition for an optional program leading directly to the Ph.D.

2. All students will be required to submit satisfactory scores for the Aptitude and Advanced Placement Test of the Graduate Record Examination with application to enter the Graduate School. A combined score of at least 1000 is required on the Verbal and the Quantitative portions of the Graduate Record Examination. The minimal acceptable verbal or quantitative score is 400.

3. Two letters of recommendation.

4. A personal interview with departmental personnel.

B. Program Requirements

1. *Course Requirements*—Biology 8000, 8200, 8600, and 9000. Attendance in seminar is mandatory. Biology 8000 or an equivalent must have been completed by the end of first year of residence. A minimum of 3 academic years (72 semester hours) beyond the baccalaureate degree is required. A minimum of 30 semester hours (including 18 semester hours of Biology 9000 Research and Dissertation) must be taken in residence.

2. *Qualifying Examination*—Graduate students will be administered a qualifying examination early in the first semester of residence in order to determine their qualifications to become early doctoral students.

3. *Foreign Language and Research*—Students are required to demonstrate competence in foreign language or research tool areas, or both. This requirement will be determined by each student's advisory committee.

4. *Comprehensive Examination and Candidacy*—After two years of course work, the graduate student may take the written and oral comprehensive examination in his or her major area.

Admission to candidacy will be recommended to the Graduate School by the student's committee upon satisfactory completion of any language requirement, course work, comprehensive examination, and acceptance of the dissertation project.

5. *Dissertation and Research Prospectus*—A dissertation will be required of all candidates for the doctoral degree. A minimum of eighteen (18) hours of research and dissertation credit must be completed during the graduate program. The dissertation must show a mastery of the techniques of scientific research, and it must be a distinct and new contribution to the body of scientific knowledge.

The student's committee must approve the topic, prospectus and the final dissertation.

6. *Final Examination*—The final examination will be conducted by the chair of the student's committee. The committee will consist, insofar as possible, of the same persons involved in the comprehensive examinations. The final examination will be an oral defense of the dissertation and will be announced and open to the public. Upon successful completion of the examination and all degree requirements, the committee will recommend awarding the Ph.D.

E060 BIOLOGY (BIOL)

6002. Toxicology. (3). Effects of foreign substances on biological mechanisms. Absorption, excretion, metabolism, and biotransformation of potentially harmful substances. PREREQUISITE or COREQUISITE: CHEM 3312.

6003. Experimental Toxicology. (4). Advanced aspects of toxicology, instrumentation, organism culturing, and procedures involved in assessment of relative toxicity. *Two lecture, four laboratory hours per week.* PREREQUISITE: BIOL 6002, COREQUISITE: CHEM 4511 or consent of instructor.

6050. Field Technique in Ecology. (4). Applied ecology covering practical training in forest, field, aquatic, and atmospheric sampling and analysis. Extended field trips. *Two lecture, four laboratory hours per week.* PREREQUISITE: Consent of instructor.

6055. Ecological and Environmental Issues. (3). Ecological perspective on current environmental issues such as conservation and biodiversity, global climatic change, and regulation of chemicals in the environment. *Three lecture hours per week.* PREREQUISITE: BIOL 3050 or consent of instructor.

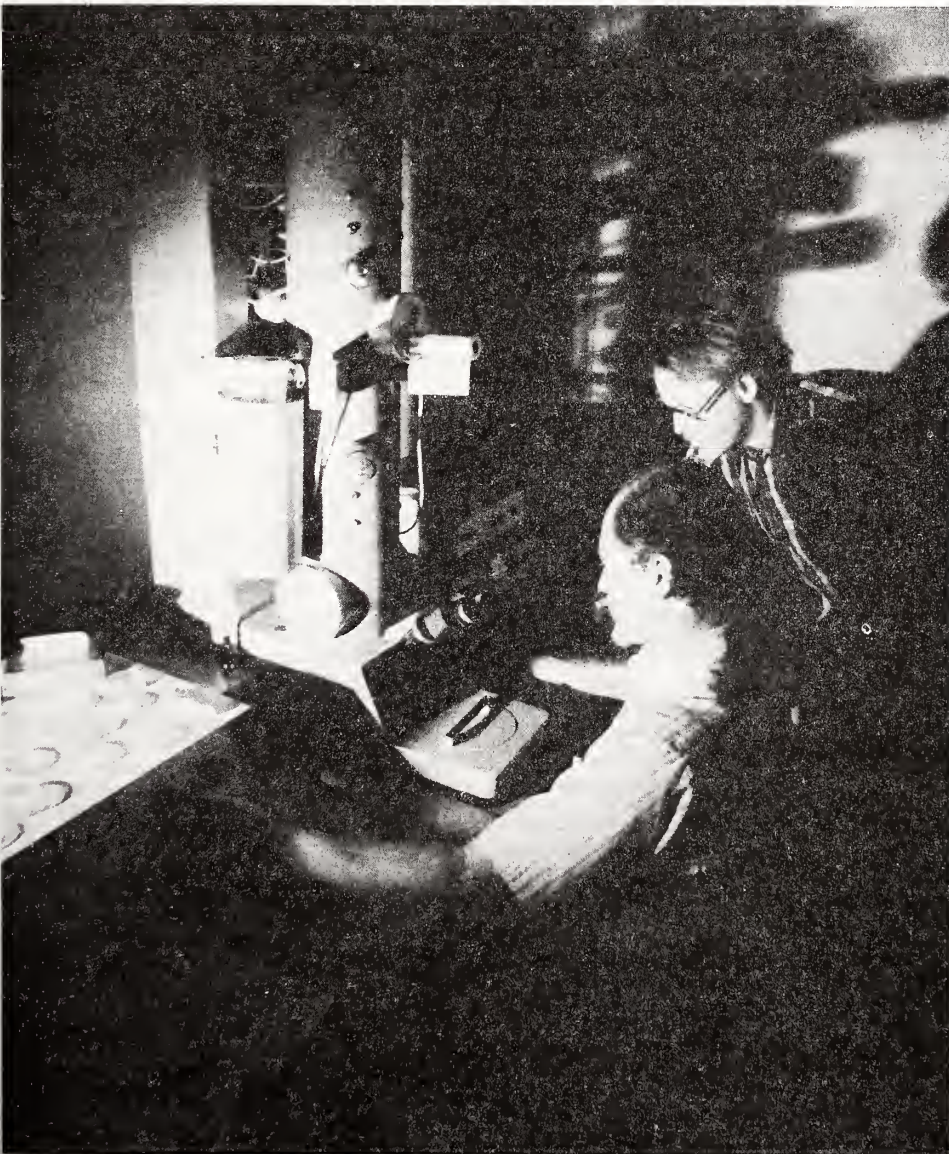
6060. Limnology. (4). Physical and chemical attributes of lakes, ponds and streams; organisms of fresh water; problems of production; laboratory work emphasizes Tennessee lakes, and practical training in limnological methods and identification of organisms. *Two lecture, four laboratory hours per week.* PREREQUISITE: BIOL 1112, and one year of chemistry.

6080. Radiation Biology. (4). Origin and characteristics of ionizing radiations with a detailed discussion of radiation effects upon life processes from the molecular to the ecosystem level. *Three lecture, two laboratory hours per week.* PREREQUISITES: CHEM 3311 or 3312; BIOL 3070.

6100. Evolution. (3). Synthesis of principles and concepts of modern evolutionary theory; geological evolution, biological evolution, and evolution of societies; emphasis on recent developments and current controversies.

6130. Cell and Molecular Biology. (4). Introduction to the principles of molecular biology including discussions of ultrastructure, intracellular metabolism, gene structure and function, and cell differentiation. *Four lecture hours per week.* PREREQUISITES: BIOL 1111 or its equivalent, BIOL 3070, and CHEM 3312.

6151. Developmental Biology. (5). Introduction to study of developing biological systems at cellular and molecular level. *Three lecture, four laboratory hours per week.* PREREQUISITES: BIOL 3070 and CHEM 3312.



6225. Mycology. (4). Basic life cycles, morphology and classification of fungi. Consideration of the interaction of fungal organisms in the environment. *Two lecture, four laboratory hours per week.* PREREQUISITE: BIOL 3200 or consent of instructor.

6231. Plant Physiology. (4). Principles of physiology and their application to lower plant groups, exclusive of bacteria and related forms. *Two lecture, four laboratory hours per week.* PREREQUISITE: BIOL 3200 or consent of instructor.

6232. Plant Physiology. (4). Principles of physiology and their application to the living organism as a whole, with emphasis on higher plants. *Three lecture, three laboratory hours per week.* PREREQUISITE: BIOL 3200 or consent of instructor.

6240. Plant Taxonomy. (4). Principles of plant taxonomy. Special attention to the classification of selected vascular plant families. Field trips. *Two lecture, four laboratory hours per week, with field trips.* PREREQUISITE: BIOL 3200 or consent of instructor.

6440. Pathogenic Microbiology. (4). Pathogenic bacteria, the diseases they cause and methods of diagnosis with an introduction to immunological principles and immunity. Considerable attention to laboratory methods used for identification of pathogenic bacteria. *Two lecture, four laboratory hours per week.* PREREQUISITE: BIOL 3500, with organic chemistry desirable.

6444. Immunology. (4). *In vitro* and *in vivo* reactions of antigens and antibodies, hypersensitivities, blood groups and vaccines. *Two lecture, four laboratory hours per week.* PREREQUISITES: BIOL 3500 and CHEM 3311.

6450. Microbial Ecology. (3). Roles of microorganisms in the environment. Microbial processes, interactions with the environment and biota, population ecology, community ecology, and biodegradation. *Three lecture hours per week.* PREREQUISITES: BIOL 3500, CHEM 4511, and CHEM 4512; or consent of instructor.

6451. Field Techniques in Microbial Ecology. (3). Intensive field course; philosophy and methods of microbial ecology. Field work on the Mississippi River required and one extensive field trip. *One lecture, four laboratory hours per week.* PREREQUISITE or COREQUISITE: BIOL 6450 and permission of instructor.

6470. Molecular Genetics. (4). Structure, functions and replication of DNA, recombination, the colinearity of DNA with the genetic map, mutagenesis, gene transfer, plasmids, the code, protein synthesis, suppression, regulation of gene expression, genetic engineering. For students without formal training in molecular genetics. *Four lecture hours per week.* PREREQUISITE: Organic chemistry or consent of the instructor.

6475. Recombinant DNA Techniques. (4). Laboratory with theory and application of recombinant DNA techniques. *Eight laboratory hours per week.* PREREQUISITES: Consent of instructor and BIOL 6470 or equivalent.

6503. Biochemistry Laboratory. (1). (Same as CHEM 6501). Investigation of physical and chemical properties of compounds of biological interest by common laboratory techniques; assay of enzymes and enzyme kinetics. *Three laboratory hours per week.* PREREQUISITES: CHEM 3302 or 3303 and CHEM 3312. PREREQUISITE OR COREQUISITE: BIOL 6511 or CHEM 6511.

6504. Biochemistry Laboratory. (1) (Same as CHEM 6502). Biochemical laboratory techniques with special emphasis on fractionating biological samples and measuring metabolic activity. *Three laboratory hours per week.* PREREQUISITE: BIOL 6511 or CHEM 6511.

6511. Biochemistry I. (3). (Same as CHEM 6511). Chemistry of amino acids and proteins as related to their properties in biochemical systems; enzymology, including kinetics and conformation studies. Coenzymes and their functions; chemistry of carbohydrates, lipids and nucleotides. PREREQUISITE: CHEM 3312. COREQUISITE: BIOL 6503 or CHEM 6501.

6512 Biochemistry II. (3). (Same as CHEM 6512). Continuation of BIOL 6511. Metabolism of carbohydrates, amino acids and nucleotides. Biochemistry of DNA and RNA, including their relationship to biosynthesis of proteins; metabolic control. PREREQUISITE: BIOL 6511 or CHEM 6511. COREQUISITE: BIOL 6504 or CHEM 6502.

6560. Microbiology of Foods. (4). Microorganisms in natural and processed foods; origins, nature and effects on foods, enumeration, and the relation to health. *Two lecture, four laboratory hours per week.* PREREQUISITE: BIOL 3500 or consent of instructor.

6604. Ethology and Behavioral Ecology. (4). Animal behavior, primarily from ecological and evolutionary perspective. *Two lecture, four laboratory hours per week.* PREREQUISITE BIOL 1112 or equivalent.

6620. Vertebrate Histology. (4). Microscopic study of normal tissues and organs of the vertebrate body. *Three lecture, four laboratory hours per week.* PREREQUISITE: BIOL 3610 or 3620 or permission of instructor.

6630. General Endocrinology. (3). Anatomy and physiology of the organs of internal secretion; role of hormones in metabolism and development. *Three lecture-demonstration hours per week.* PREREQUISITE: BIOL 3730.

6640. Ornithology. (4). Biology of birds, with emphasis on avian anatomy, physiology, behavior, and reproductive biology. Field trips emphasize identification of local species and techniques of field study. *Two lecture, four field/laboratory hours per week.* PREREQUISITE: BIOL 1112.

6644. Ichthyology. (4). Fishes, with special emphasis upon the kinds which occur in Tennessee; collection, preservation and identification; life histories, management, and economic importance of fishes. *Two lecture, four laboratory hours per week.* PREREQUISITE: BIOL 1112.

6651. Field Techniques in Vertebrate Zoology. (4-6). Techniques in extended field study of vertebrates outside the local area. Credit hours to be determined in consultation with instructor.

6720. Vertebrate Neurology. (4). Nervous system of selected vertebrates. *Three lecture, four laboratory hours per week.* PREREQUISITES: BIOL 1112 or permission of the instructor.

6740. Mammalogy. (4). Classification, distribution, life histories, economic importance, techniques of field study, methods of collection and preservation of mammals. *Two lecture, four laboratory hours per week.* PREREQUISITE: BIOL 3700 or consent of instructor.

6744. Herpetology. (4). Classification, distribution, life histories, techniques of collection and preservation, natural habitats of North American reptiles and amphibians. *Two lecture, four laboratory hours per week.* PREREQUISITE: BIOL 3620 or 3700 or permission of instructor.

6770. Mammalian Genetics. (4). Principles of heredity of mammals with primary emphasis on mice and humans. *Three lecture, two laboratory hours per week.* PREREQUISITE: BIOL 3070 or equivalent.

6820. Protozoology. (4). Free-living and parasitic protozoa, with consideration given to structure, function, taxonomy, habitat, and life history.

6840. Invertebrate Zoology. (4). Invertebrate phyla with emphasis on phylogeny, embryology, and ecology of selected groups. Extended field trip. *Two lecture, four laboratory hours per week.*

6930. Insect Physiology. (4). Physiology as applied to the life processes of insects. *Two lecture, four laboratory hours per week.* PREREQUISITES: BIOL 1111 or equivalent.

†7000-8000. Orientation to Graduate Studies. (2). Source of literature in field of biology, data presentation, graphic techniques and manuscript preparation. *One lecture, two laboratory hours per week.*

7002-8002. Ecotoxicology. (3). Effects of pollutants on ecosystem; bioassay techniques, bioconcentration, bioaccumulation, terrestrial and aquatic toxicology, transformations of environmental pollutants, and legal aspects of environmental toxicology. Toxicology integrated with ecology, limnology, and environmental chemistry. PREREQUISITES: CHEM 3312, an ecology and a physiology course.

7003-8003. Fate of Chemicals in the Environment. (3). Physical, chemical and biological behavior of chemicals in water, soil, and air; problem-solving approach used to predict how chemical pollutants behave in environment. *Three lecture hours per week.* PREREQUISITE: Permission of Instructor.

7010-8010. Principles and Methods of Systematic Biology. (3). Systematic philosophies and numerical methods developed to deal with systematic and taxonomic problems. Discussions of international rules, concept of species, and the roles and aims of practicing systematists. Projects designed to give practical experience in analyzing data. *Two lecture and two laboratory hours per week.* PREREQUISITE: BIOL 1111 or permission of instructor.

7015-8015. Aquaculture. (3). Principles and procedures related to the culture of commercially important freshwater organisms under controlled conditions. *Three lecture hours per week.*

7030-8030. Cell Ultrastructure. (3). Survey of ultrastructure of procaryotic and eucaryotic cells; interpreting ultrastructure of organelles and understanding specimen preparation artifacts in electron microscopy; alternate methods for preparing samples; cytochemical methods; cell wall ultrastructure in bacteria and plants, cytoskeleton, ultrastructure of plant-microbe associations, and ultrastructure of plastid development. *Three lecture hours per week.* PREREQUISITE: BIOL 1111 and 1112 or equivalent.

7031-8031. Cellular Physiology. (4). Cell function; cellular thermodynamics; exchange of materials across cell membranes; physiological buffering systems; enzyme kinetics; cellular respiration; and cellular response to extracellular perturbation. *Two lecture, four laboratory hours per week.* PREREQUISITE: BIOL 3070 and CHEM 3312 or permission of instructor.

7051-8051. Vertebrate Cell Culture Techniques. (4). Theory, principles and practical preparation in the use of vertebrate cell cultures and cell lines in biomedical research. *Two lecture, four laboratory hours per week.* PREREQUISITES: BIOL 3070 and CHEM 3312 or permission of instructor.

7070-8070. Cytogenetics. (4). Current theories concerning the nature of the gene and the mechanisms of recombination and mutation. Chromosome aberrations and their genetic behavior. *Three lecture, two laboratory hours per week.* PREREQUISITE: BIOL 3070.

†7092-8092. Research. (1-4). Consultation, reading, and laboratory work investigating selected topics in biology. Formal paper with review of literature and results of investigation required. May be repeated for maximum of four semester hours credit.

7101-8101. Biological Electron Microscopy. (4). Introduction to techniques in electron microscopy for biologists. *One lecture, six laboratory hours per week.* PREREQUISITE: Consent of instructor.

7102-8102. Advanced Biological Electron Microscopy. (4). Advanced techniques in electron microscopy for biologists. *One lecture, six laboratory hours per week.* PREREQUISITE: BIOL 7101-8101.

7130-8130. Comparative Animal Physiology. (4). Analysis of the physiological mechanisms of animal adaptation and their relevance to evolution, distribution and survival in diverse environments. *Two lecture, four laboratory hours per week.* PREREQUISITES: An upper division course in physiology and organic chemistry.

7170-8170. Population Genetics. (4). Mutation, migration, selection, behavior and maintenance of variability as they affect the genetic structure of natural populations. *Two lecture, four laboratory hours per week.* PREREQUISITE: BIOL 3070 or equivalent.

†7200. Seminar in Biology. (1). (Open to Biology majors only.) A consideration of selected topics in the biological sciences. Credit is earned when an approved topic is presented to the department prior to the final semester in residence.

7250-8250. Community and Landscape Ecology. (4). Distributions of organisms on worldwide and local basis with emphasis on factors influencing distribution and growth. *Two lecture, four laboratory hours per week.* PREREQUISITE: BIOL 3050 or consent of the instructor.

7331-8331. Photosynthesis. (2). Lectures and readings on modern theory of photosynthesis. Includes such topics as chloroplast structure and function; chemistry and photochemistry of chlorophyll; influence of external factors on rate of photosynthesis, absorption, fluorescence, and luminescence; energy storage; efficiency; carbon fixation; photosynthesis in cell extracts; phosphorylation. *Two lecture hours per week.* PREREQUISITES: BIOL 1112, 6231, 6232.

7450-8450. Advanced Microbial Ecology. (3). Advanced topics in microbial ecology. Focus on current literature. Topics will include biogeochemistry, use of microorganisms as models for testing ecological principles, and role(s) of microorganisms in unique environments. **PREREQUISITES:** BIOL 3500 and 6450. BIOL 6451 suggested or consent of instructor.

7464-8464. Advanced Immunology. (4). Advanced topics and techniques in immunobiology and immunochemistry. *Two lecture, four laboratory hours per week.* **PREREQUISITES:** BIOL 6444 and CHEM 6511 or their equivalents.

7500-8500. Virology. (4). Introduction to the viruses. Principles of methodology concerning origin, development, classification, and propagation. *Three lecture, two laboratory hours per week.* **PREREQUISITE:** BIOL 3500 and organic chemistry.

7530-8530. Bacterial Physiology. (4). Bacterial physiology including growth, nutrition, biosynthesis, and adaptation. *Three lecture, two laboratory hours per week.* **PREREQUISITES:** BIOL 3500, or its equivalent, and at least one year of chemistry.

†7600. Seminar in Biology. (1). Selected topics in the biological sciences. Credit is earned when the student presents the results of his thesis research. **PREREQUISITE:** BIOL 7200.

7610-8610. Environmental Effects on Development. (2). Environment-gene interactions and developmental plasticity; evolutionary, physiological, morphological, and ecological consequences of these interactions. *Two lecture hours per week.*

7700-09-8700-09. Special Topics in Biology. (1-4). Current topics of special interest in biology. May be repeated for a maximum of four semester hours credit. **PREREQUISITE:** Permission of instructor.

7730-8730. Mammalian Physiology. (5). A concentrated investigation of the functional activities of a typical mammal. *Two lecture, six laboratory hours per week.* **PREREQUISITES:** BIOL 3620 and 3730.

7750-8750. Physiological and Population Ecology. (4). Relationships of organisms to their environments with special emphasis upon population dynamics and ecological relationships at the individual level. *Two lecture, four laboratory hours per week.* **PREREQUISITES:** BIOL 1112 and 3050.

7844-8844. Advanced Parasitology. (4). Animal parasitology with emphasis on techniques and experimental approaches in parasitology. *Two lecture, four laboratory hours per week.* **PREREQUISITE:** BIOL 3800 or consent of instructor.

†7996. Thesis. (1-6).

†8200. Seminar in Biology. (1). Selected topics in biological sciences. Credit earned when a seminar on the dissertation problem and research is presented to the department during the second year of the doctoral program.

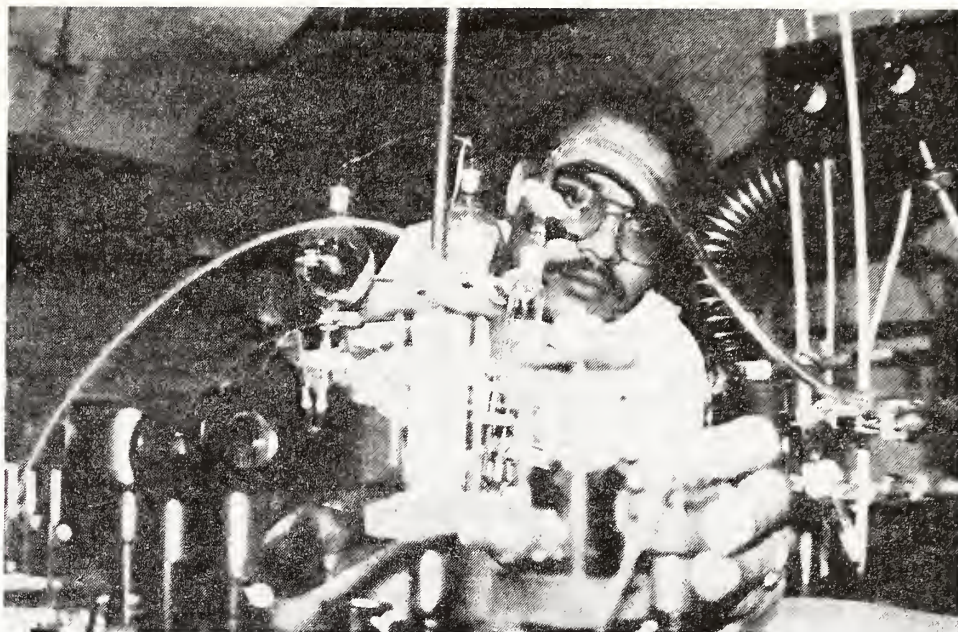
†8600. Seminar in Biology. (1). Selected topics in biological sciences. Credit earned when the student presents the public oral defense of his dissertation research. **PREREQUISITE:** BIOL 8200.

†9000. Doctoral Research and Dissertation (1-10). The dissertation must be an independent research project applying a mastery of the techniques of scientific research. It must be a distinct and new contribution to the body of scientific knowledge and be published or accepted for publication wholly or in part in a recognized journal acceptable to the student's committee. Minimum total of 18 hours is required.

***These courses listed below are taught at the Gulf Coast Research Lab, Ocean Springs, Mississippi. Memphis State University residence credit is given through affiliation with the laboratory.**

***6010. Aquaculture. (6).** Technology, principles, and problems relating to the science of aquaculture; emphasis on culture of marine species. **PREREQUISITES:** 16 hours of zoology including invertebrate and vertebrate zoology or ichthyology.

***6020. Comparative Histology of Marine Organisms. (1-6).** Histological organization of representative marine organisms. Fixation, processing, and study of tissues using light microscopy, transmission and scanning electron microscopy. Structural changes and physiological changes during life cycle of organism including histopathology. **PREREQUISITES:** Consent of instructor.



***6051. Marine Ecology. (5).** Relationship of marine organisms to their environment, effects of temperature, salinity, light, nutrient concentration, currents, food, and competition on abundance and distribution of marine organisms. **PREREQUISITES:** 16 hours of biology including general zoology, general botany, and invertebrate zoology.

***6052. Salt Marsh Plant Ecology. (4).** Botanical aspects of local marshes. Plant identification, composition, structure, distribution, and development of coastal marshes. Biological and physical interrelationships. Primary productivity and relation of marshes to estuaries and associated fauna. **PREREQUISITES:** General botany, plant taxonomy, plant physiology, and general ecology or consent of instructor.

***6200. Marine Botany. (4).** Local examples of the principal groups of marine algae and maritime flowering plants, treating structure, reproduction, distribution, identification and ecology. **PREREQUISITE:** Ten hours of biology, including introductory botany, or consent of instructor.

***6300. Coastal Vegetation. (3).** General and specific aspects of coastal vegetation, with emphasis on local examples. **PREREQUISITES:** 10 hours of biology, including general botany.

***6500. Marine Microbiology. (5).** Role of microorganisms in the overall ecology of the oceans and estuaries. **PREREQUISITES:** General microbiology and environmental microbiology or consent of instructor.

***6600. Marine Vertebrate Zoology and Ichthyology. (6).** Marine Chordata, including lower groups and the mammals and birds, with most emphasis on the fishes. **PREREQUISITES:** 16 hours of zoology including comparative anatomy or consent of the instructor.

***6610. Early Life History of Marine Fishes. (4).** Reproductive strategies and developmental processes of marine fishes. Temporal and spatial distribution patterns, population dynamics, and ecological interactions of fish eggs and larvae. Methods of sampling and identifying eggs and larvae. **PREREQUISITES:** Ichthyology, fisheries biology, ecology, and/or consent of instructor.

***6646. Marine Fisheries Management. (4).** Overview of practical marine fishery management problems. **PREREQUISITES:** Consent of instructor.

***6700. Behavior and Neurobiology of Marine Animals. (4).** Behavior, neuroanatomy, and neurophysiology of marine animals; emphasis on the neural mechanisms underlying behavior of selected invertebrates, fishes, birds and mammals. **PREREQUISITES:** 16 hours of zoology and/or psychology or consent of instructor.

***6800. Marine Invertebrate Zoology. (6).** Important free-living, marine and estuarine invertebrates of Mississippi Sound and adjacent continental shelf of northeastern Gulf of Mexico; emphasis on structure,

classification, phylogenetic relationships, larval development and functional processes. **PREREQUISITES:** 16 hours of zoology including introductory invertebrate zoology.

***6844. Parasites of Marine Animals. (6).** Parasites of marine animals with emphasis on morphology, taxonomy, life histories and host parasite relationships. Lecture, laboratory and field work. **PREREQUISITES:** General parasitology or consent of the instructor.

***6850. Fauna and Faunistic Ecology of Tidal Marshes. (4).** Taxonomy, distribution, trophic relationships, reproductive strategies and adaptation of tidal marsh animals; emphasis on those occurring in northern Gulf marshes. **PREREQUISITES:** 16 hours of biology and junior standing or consent of instructor.

***†7093. Problems in Zoology. (3-6).** Supervised research on specific problems in marine zoology for graduates. **PREREQUISITE:** BIOL 6800 or 6600.

†Grades of S, U, or IP will be given.

CHEMISTRY

H. GRADEN KIRKSEY, JR., Ph.D., *Chair*
Room 210, J.M. Smith Building

PETER K. BRIDSON, Ph.D., *Coordinator of*
Graduate Studies

I. The Department of Chemistry offers graduate programs leading to the Master of Science and Doctor of Philosophy degrees with a major in chemistry. Concentrations are available in inorganic, analytical, organic, physical, and biochemistry. Related courses may be taken in other departments including physics, mathematics, geology, biology, and engineering and in fields other than the student's major within the Department of Chemistry.

II. M.S. Degree Program

A. Program Admission and Prerequisites

Prospective students, in addition to meeting the requirements for admission to The Graduate School, are required to present as a prerequisite for admission a satisfactory record of undergraduate work in chemistry; normally 32 semester hours of chemistry will be required. Students who are deficient in undergraduate work may be admitted and the deficiencies removed without graduate credit.

B. Program Requirements

1. *Diagnostic Examinations*—In the week preceding registration for each semester, a series of four examinations in the specializations of physical,

inorganic, organic, and analytical chemistry will be administered to incoming graduate students. The purpose of these examinations is to aid in the advising of entering students, and to insure that the students have a broad enough background to undertake a specialized advanced degree program. These examinations will be comparable to final examinations given in the undergraduate program at Memphis State University in the courses CHEM 3312 (organic), CHEM 3411 (physical), CHEM 4111/6111 (inorganic), and CHEM 4220/6220 (analytical instrumentation). Any of the four parts not passed must be repeated each time that it is offered. A student can elect to enroll in the course designated above in lieu of repeating a part of the examination. A grade of B or better must be obtained to satisfy the requirement. Students who have not satisfied the requirement for each part after the third opportunity will be dropped from the Master's or Ph.D. program. Students are advised against, but not prohibited from, taking a graduate course in an area in which they failed the examination before they have successfully removed the deficiency.

2. Course Work Requirements— The thirty semester hour total required is subject to the following restrictions.

a. Electronic Structure and Symmetry (7411/8411) is required of all graduate students. Six hours must be selected from two different specializations utilizing some combination of the following courses: Inorganic 7111/8111; Analytical 7211/8211; Organic 7311/8311; Biochemistry 7511/8511 (or 7510/8510).

b. A maximum of six semester hours of Chemistry 8000 (Research and Dissertation/Thesis) and/or Chemistry 9000 (Doctoral Research and Dissertation) can be applied to the thirty semester hour requirement.

c. A maximum of three semester hours of Chemistry 7910/8910 (Special Problems in Chemistry) may be counted toward the thirty semester hour requirement.

d. A maximum of three semester hours of Chemistry 7913/8913 (Seminar) can be used to meet the thirty semester hours required.

e. A maximum of six semester hours credit can be granted for graduate courses successfully completed at other accredited institutions.

3. Cumulative Examinations— The student must begin the cumulative examinations by the beginning of the third semester providing the core course in the student's major area has been successfully completed. These are described in the summary of the administration of the graduate program. A student pursuing the master's degree is permitted to take a maximum of eight tests and must obtain a total of at least six points. Any student who has not amassed six points at the completion of eight tests is automatically terminated from the master's degree program.

4. Seminar— Participation in seminar is required during each semester of residence (excluding summer terms). Each student is required to present at least one formal seminar before graduation.

5. The Advisory Committee— Upon admission to the Graduate School, the student will be advised by the Department's Graduate Studies Committee. A student must choose a major professor before the end of the second semester following enrollment. The major professor, in consultation with the student, will recommend to the department chair faculty members to be appointed to the student's advisory committee. This committee, which is appointed as soon as the student has selected a major professor, must be composed of at least three members, with the major professor serving as chair. Upon appointment, the committee will review the student's progress to date, and outline an appropriate program tailored to the student's individual interests to permit fulfillment of the degree requirements.

6. Thesis Option:

a. **Research Prospectus—** After selecting the research problem on which the thesis is to be based the student will prepare a Research Prospectus to be presented orally to the Advisory Committee in an open meeting, and in a written form to the Graduate Studies Committee. The prospectus must be presented before the end of the second year.

b. **Progress Report—** Each subsequent year until the year of graduation the student will prepare a research progress report to be presented orally to the Advisory Committee and in a written form to the Graduate Studies Committee.

c. **Thesis—** Each student must submit a thesis acceptable to the student's advisory committee. The thesis can be based on work done for CHEM 8000 or 9000, for which a maximum of six credit hours can be applied to the degree requirement.

7. Non-thesis Option— If a non-thesis program is selected, a student must prepare a detailed report in the form of a review or proposal, based on literature research. Three hours credit for CHEM 7910 will be earned.

8. Comprehensive Examination— A final oral examination on the student's thesis or report and related material will be administered by the student's advisory committee after completion of all other requirements. This examination will be held seven or more days after the student has distributed copies of the thesis or report to the members of the advisory committee, which must be done at least one month before the end of the semester in which the student expects to graduate. If the final oral examination is unsatisfactory it must be repeated within one year; it may not be repeated more than once.

9. Retention— A student pursuing the Master's degree program may be terminated for any of the following reasons.

a. Failure to demonstrate proficiency on each part of the diagnostic examinations (See Section 1).

b. Failure to maintain a grade point average of 3.0 or above. A student who has a cumulative grade point average below 3.0 will be placed on probation. Continuation in graduate school must be approved by the Dean of the Graduate School. Any person whose continuation is denied may appeal the decision to the Council for Graduate Studies and Research.

c. Failure to accumulate the requisite number of points on the departmental cumulative examinations (See Section 3).

d. Failure to complete the degree requirements within six years of initial enrollment in the graduate program.

e. Failure to satisfy the advisory committee on the final oral examination (See Section 9).

III. Ph.D. Degree Program

A. Program Admission

See M.S. admission requirements.

B. Program Requirements

1. Diagnostic Examinations— See M.S. diagnostic examination requirements.

2. Course Work Requirements— The doctorate degree program includes the requirement of the satisfactory completion of a minimum of 72 semester hours of graduate credit. The 72 hour total is subject to the following restrictions:

a. Electronic Structure and Symmetry (7411/8411) is required of all graduate students. Six hours must be selected from two different specializations utilizing some combination of the following courses: Inorganic 7111/8111; Analytical 7211/8211; Organic 7311/8311; Biochemistry 7511/8511 (or 7510/8510).

b. A maximum of 30 hours credit for CHEM 8000 (Research and Dissertation/Thesis) and CHEM 9000 (Doctoral Research and Dissertation) combined can be applied toward the 72 hour total.

c. A maximum of 12 hours of CHEM 7910/8910 (Special Problems in Chemistry) may be credited toward the total hour requirement.

d. A maximum of 12 hours of course work may be included in a field related to chemistry (physical or biological sciences, mathematical sciences, or engineering). Courses taken in related areas must be numbered 6000 or above.

e. A maximum of three semester hours of CHEM 7913/8913 (Chemistry Seminar) can be used to meet the 72 semester hours required.

f. A maximum of 30 hours of graduate course credit completed at MSU or other accredited institution (including credit applied on an M.S. degree) may be applied to the 72 hour requirement subject to the approval of the student's advisory committee and the Department's Graduate Studies Committee. A minimum of 18 hours in graduate courses other than CHEM 7910/8910, CHEM 7913/8913, and CHEM 8000/9000 must be completed at MSU.

3. Residence— Of the total semester hour requirement, a minimum of 24 hours must be earned while the student

is at Memphis State University. This requirement cannot be met wholly by attendance at Summer Sessions, and must include at least one academic year of full-time student status.

4. Cumulative Examinations— The student must begin the cumulative examinations by the beginning of the third semester providing the core course in the student's major area has been successfully completed. These examinations are described in the summary of the administration of the graduate program. A student pursuing the Doctor's degree is permitted to take a maximum of eight tests and must obtain a total of at least twelve points. Any student who has not amassed twelve points at the completion of eight tests is automatically terminated from the Doctor's degree program.

Students who enter the Ph.D. program and already hold the M.S. degree in chemistry must begin taking the cumulative examinations at the first opportunity after initial enrollment if a satisfactory score is made on the diagnostic examinations.

5. Seminar— Participation in Seminar is required during each semester of residence (excluding summer terms). A maximum of three semester hours of credit for CHEM 7913/8913 is allowable toward the 72 semester hours required for graduation. Each student is required to present at least one formal seminar before graduation.

6. The Advisory Committee— Upon admission to the Graduate School, the student will be advised by the Department's Graduate Studies Committee. A student must choose a major professor from the graduate faculty before the end of the second semester following enrollment. The major professor, in consultation with the student, will recommend to the department chair faculty members to be appointed to the student's Advisory Committee. This committee, which is appointed as soon as the student has selected a major professor, must be composed of at least five members, with the major professor serving as chair. Of the members of this committee, at least one is to be from a different area of specialization than that in which the student intends to work. Upon appointment, the committee will review the student's progress to date and outline an appropriate program tailored to the student's interests to enable fulfillment of the degree requirements.

A student who enters the Ph.D. program and already holds the M.S. degree in chemistry must select a major professor during the first semester in residence, or upon completion of the diagnostic examinations.

In the event that a student changes major professors, a new Advisory Committee must be appointed.

7. Admission to Candidacy— In order to apply for candidacy, the student must have an Advisory Committee and must have taken the Graduate Record Examinations, and must have successfully completed the departmental cumulative examination requirement. The cumulative examinations collectively are considered to be equivalent to the qualifying examination required by the Graduate School. The test scores, transcripts, and other pertinent data will be examined by the student's Advisory Committee, and their recommendation, with the approval of the Department Chair, will be forwarded to the Graduate Dean.

8. Research Prospectus— After selecting the research problem on which the dissertation is to be based, the student will prepare a Research Prospectus to be presented orally to the Advisory Committee in an open meeting, and in a written form to the Graduate Studies Committee. The Research Prospectus must be presented before the end of the second year.

A student who enters the Ph.D. program having previously obtained the M.S. degree in chemistry is required to present a Research Prospectus before the completion of two semesters. A student who changes major professors must present a new Research Prospectus within one semester after the change is made.

9. Progress Report— Each subsequent year until the year of graduation the student will prepare a research progress report to be presented orally to the Advisory Committee, and in a written form to the Graduate Studies Committee.

10. Doctoral Research and Dissertation— Registration for nine semester hours of CHEM 9000 and CHEM 8000 combined is required of all doctoral candidates before the dissertation will be considered.

11. **Comprehensive Examination**—A final oral examination on the student's dissertation and related material will be administered by the student's Advisory Committee after completion of all course requirements and the dissertation. This examination will be held two weeks or more after the student has distributed copies of the dissertation to the members of the Advisory Committee; which must be done at least five weeks before the end of the semester in which the student expects to graduate. If the final oral examination is unsatisfactory, it must be repeated within one year. It may not be repeated more than once.

12. **Retention**—A student pursuing the Doctor's degree program may be terminated for any of the following reasons:

- Failure to satisfy each part of the diagnostic requirements. (See Section 1).
- Failure to maintain a grade point average of 3.0 or above. A student who has a cumulative grade point average below 3.0 will be placed on probation. Continuation in graduate school must be approved by the Dean of the Graduate School. Any person whose continuation is denied may appeal the decision to the University Council for Graduate Studies and Research.
- Accumulation of more than six hours of graduate credit with grades of C or below.
- Failure to accumulate the requisite number of points on the departmental cumulative examinations. (See Section 4).
- Failure to satisfy the Advisory Committee on the final oral examination. (See Section 11).

E070 CHEMISTRY (CHEM)

5601. Workshop in Chemical Demonstrations. (3). Preparing and presenting demonstrations and activities to illustrate chemical principles, processes and properties for K-8 classrooms. *Six hours lecture/lab per week.* PREREQUISITE or COREQUISITE: K-8 teaching experience or permission of instructor. (S, U, IP).

6101. Inorganic Chemistry Laboratory. (1). Experimental techniques of inorganic synthesis and physical methods for characterization of inorganic and organometallic compounds. *Three laboratory hours per week.* PREREQUISITE or COREQUISITE: CHEM 4111-6111.

6111. Inorganic Chemistry. (3). Theoretical and applied inorganic chemistry. Stress on the relationship of structure and bonding to the properties of elements and compounds. Topics include introductory molecular orbital theory, coordination compounds and organometallics, ligand field theory, nonaqueous solvent systems, and reaction mechanisms. *Three lecture hours per week.* PREREQUISITE: CHEM 3412, or permission of the instructor.

6180-99. Special Topics in Inorganic Chemistry. (1-3). Topics are varied and announced in *Schedule of Classes*.

6220. Advanced Instrumental Analysis. (4). Advanced topics in electrochemical, spectroscopic, and chromatographic methods, and an introduction to electronic and optical principles of chemical instrumentation. *Two lecture, six laboratory hours per week.* PREREQUISITE: CHEM 3412.

6280-99. Special Topics in Analytical Chemistry. (1-3). Topics are varied and announced in *Schedule of Classes*.

6380-99. Special Topics in Organic Chemistry. (1-3). Topics are varied and announced in *Schedule of Classes*.

6480-99. Special Topics in Physical Chemistry. (1-3). Topics are varied and announced in *Schedule of Classes*.

6501. Biochemistry Laboratory. (1). Investigation of physical and chemical properties of compounds of biological interest by common laboratory techniques. Assay of enzymes and enzyme kinetics are stressed. *Three laboratory hours per week.* PREREQUISITES: CHEM 3302 or 3303 and CHEM 3312. PREREQUISITE or COREQUISITE: CHEM 6511.

6511. Biochemistry. (3). Chemistry of amino acids and proteins as related to their properties in biochemical systems. Enzymology, including kinetics and conformation studies. Coenzymes and their functions. The chemistry of carbohydrates, lipids and nucleotides. PREREQUISITE: CHEM 3312.

6512. Biochemistry. (3). A continuation of CHEM 6511. Metabolism of carbohydrates, amino acids and nucleotides. Biochemistry of DNA and RNA, including their relationship to the biosynthesis of proteins. Metabolic control. PREREQUISITE: CHEM 6511.

6580-99. Special Topics in Biochemistry. (1-3). Topics are varied and announced in *Schedule of Classes*.

6601. Chemical Demonstrations. (3). Preparing and presenting demonstrations and activities to illustrate chemical principles, processes, and properties for secondary and post-secondary classes. *One lecture and four laboratory hours per week.* PREREQUISITE: CHEM 3302, CHEM 3312 or permission of instructor.

6911. Chemical Literature and Seminar. (1). Use of literature, writing of technical reports, and oral presentation of investigative reports. *One lecture hour per week.* PREREQUISITE: Consent of instructor.

7060. Principles of Environmental Chemistry. (3). Chemical problems involved in soil, aquatic and atmospheric environments. PREREQUISITE: Permission of instructor.

7111-8111. Systematic Inorganic Chemistry. (3). Survey of inorganic chemistry, including electronic structure, bonding, stereochemistry, symmetry, and the physical and chemical properties of the elements and their compounds.

7112-8112. Structural Inorganic Chemistry. (3). Study of physical methods used to determine structure, and applications of group theory to chemical problems.

7211-8211. Advanced Analytical Chemistry I. (3). Techniques of analytical chemistry including statistics with computer applications, chromatography, atomic spectroscopy, and electrochemistry.

7212-8212. Advanced Analytical Chemistry II. (3). Advanced treatment of analytical topics.

7311-8311. Advanced Organic Chemistry. (3). Physical approach to organic reaction mechanisms; reactive intermediates, aromaticity, and pericyclic reactions. Introduction to advanced spectroscopic techniques and synthetic philosophy.

7312-8312. Synthetic Organic Chemistry. (3). Principles of synthesis of complex organic molecules.

7411-8411. Electronic Structure and Symmetry. (3). Basic quantum chemistry with applications to simple systems. Group theory and its applications. Molecular orbital theory including Huckel, SCF-LCAO-MO, and Qualitative MO methods.

7412-8412. Statistical Mechanics and Thermodynamics. (3). Advanced treatment of topics in classical thermodynamics; statistical thermodynamics and its application; statistical mechanics.

7413-8413. Molecular Spectroscopy. (3). Spectroscopy of molecular systems including infrared, UV, visible, microwave, Raman, NMR, and ESR; theory for obtaining molecular information from different types of spectroscopy.

7414-8414. Advanced Quantum Chemistry. (3). Advanced treatment of topics in quantum chemistry with emphasis on electronic structure theories.

7415-8415. Kinetics and Dynamics. (3). Theory and application of chemical kinetics; reaction mechanisms; molecular dynamics and kinetic theory of reaction rates.

7511-8511. Advanced Biochemistry I. (3). Advanced treatment of the physical and chemical properties of compounds of biological interest. PREREQUISITES: CHEM 4512-6512 or 7510 or equivalent.

7512-8512. Advanced Biochemistry II. (3). Continuation of CHEM 7511-8511 with emphasis on metabolic pathways and their control. PREREQUISITE: CHEM 7511-8511 or permission of instructor.

†7910-8910. Special Problems in Chemistry. (1-12). Individual investigation and report under the guidance of the student's major adviser.

†7913-8913. Chemistry Seminar. (1). Formal meetings, presentation, and discussion of current topics of interest. Students, faculty and visiting scientists participate. Required of all regularly enrolled graduate students. May be repeated for a maximum of 3 credits.

†8000. Research and Dissertation/Thesis. (1-6). An original investigation undertaken with the supervision of a member of the graduate staff. The investigation will be the basis of a dissertation or thesis.

†8100-09. Special Topics in Inorganic Chemistry. (1-3). Lectures and conferences covering selected areas of current interest (including equilibrium, titrimetric, electroanalytical, and spectral methods, separation and radio-chemical techniques, microanalysis, statistics and data analysis, and electrode kinetics). May be repeated for a maximum of 12 hours. PREREQUISITE: Permission of instructor.

†8200-09. Special Topics in Analytical Chemistry. (1-3). Lectures and conferences covering selected areas of current interest (including equilibrium, titrimetric, electroanalytical, and spectral methods, separation and radio-chemical techniques, microanalysis, statistics and data analysis, and electrode kinetics). May be repeated for a maximum of 12 hours. PREREQUISITE: Permission of instructor.

†8300-09. Special Topics in Organic Chemistry. (1-3). Lecture and conferences covering selected areas of current interest (including heterocyclic chemistry, organometallic compounds, organosulfur compounds, alkaloids, steroids, terpenes, photochemistry, biosynthesis, stereochemistry, carbohydrates, new synthetic methods, high polymers, and advanced physical-organic chemistry). May be repeated for a maximum of 12 hours. PREREQUISITE: Permission of instructor.

†8400-09. Special Topics in Physical Chemistry. (1-3). Lectures and conferences covering selected areas of current interest (including non-aqueous solutions, surface chemistry, x-ray crystallography, theoretical spectroscopy, nuclear chemistry, molecular structure of macromolecules, colloid chemistry, statistical thermodynamics, esr, and nmr). May be repeated for a maximum of 12 hours. PREREQUISITE: Permission of instructor.

†8500-09. Special Topics in Biochemistry. (1-3). Lectures and conferences covering selected areas of current interest (including enzymology, protein and nucleic acid chemistry, physical chemistry of biochemical macromolecules, lipid, carbohydrate, and amino acid metabolism, biochemical energetics, and metabolic regulation). May be repeated for a maximum of 12 hours. PREREQUISITE: Permission of instructor.

†9000. Doctoral Research and Dissertation. (1-10). An original investigation undertaken with the supervision of a member of the graduate staff to be the basis of a doctoral dissertation and a contribution to the chemical literature. (Maximum amount of semester credits is 30).

† Grades of S, U, or IP will be given.

CRIMINOLOGY AND CRIMINAL JUSTICE

JERRY SPARGER, Ph.D., *Chair*

Room 405, Mitchell Hall

DAVID GIACOPASSI, Ph.D., *Coordinator of Graduate Studies*

I. The Department of Criminology and Criminal Justice offers the Master of Arts degree with a major in Criminal Justice. The program is designed to provide a wide range of individual specialization with curricula specifically tailored to each student's undergraduate preparation, work experience, and career objectives. Coursework emphasizes the institutions and the processes of the criminal justice system, with a scientific approach to the analysis of organizational and management issues in criminal justice. The program stresses a broad understanding of the social and behavioral sciences; comprehension of the general legal issues important to criminal justice administration; development of methodological tools and skills for research and program evaluation; and acquisition of knowledge about administrative and managerial issues in criminal justice organizations. The program is based on an interdisciplinary approach, linking the criminal justice system with other academic disciplines to

develop in students an awareness of other theoretical perspectives and bodies of knowledge.

II. M.A. Degree Program

A. Program Admission

Admission to the program is competitive. To be considered for admission, the applicant must meet the following minimum criteria:

1. A baccalaureate degree from an accredited college or university
2. A grade point average of at least 2.5 (4-point scale) in all undergraduate course work
3. An acceptable score on the aptitude section of the Graduate Record Examination or Miller Analogies Test.
4. An interview may be required for admission.

B. Program Requirements

1. A total of 30 semester hours of graduate work including the completion and defense of a thesis, or 36 semester hours of graduate work without a thesis
2. Satisfactory completion of the following core curriculum:

- CJUS 7100. Proseminar in the Criminal Justice System
- CJUS 7120. Criminal Justice Policy Formulation and Analysis
- CJUS 7160. Seminar in Criminal Justice Administration
- CJUS 7570. Legal Issues in Criminal Justice Administration
- CJUS 7110. Individual Directed Study or CJUS 7996 Thesis

3. A minimum of 18 semester hours of coursework in Criminal Justice, including the core courses

4. A minimum of 9 semester hours of coursework outside the Department of Criminology and Criminal Justice, to be approved by the student's committee. For students who have an undergraduate major in Criminal Justice, coursework outside the Department of Criminology and Criminal Justice may be increased up to 18 semester hours.

5. A minimum of 25 hours of coursework at the 7000 level, including thesis hours. At least twelve semester hours of 7000 level courses must be from Criminology and Criminal Justice. Because of the interdisciplinary nature of the program, the remainder of these courses may be taken in the Department of Criminology and Criminal Justice or in a collateral area outside the department.

6. Each student must demonstrate a high level of writing proficiency and analytical skill by satisfactorily completing either an Individual Directed Study which results in a major area paper or by completing a thesis.

7. Satisfactory performance on a comprehensive examination.

8. Students will be allowed no more than 6 hours of credit in non-classroom courses such as internships, individual directed studies, and reading courses.

E075 CRIMINOLOGY AND CRIMINAL JUSTICE (CJUS)

6010-19. Special Topics in Criminal Justice. (1-3). Topics are varied and announced in *Schedule of Classes*.

6160. Forensic Sciences. (3). Forensic specialties will be discussed in terms of their history, the scientific rationale upon which each is based, and the problems that may compromise accuracy or validity; introduction to field techniques and analysis of evidence.

6180. Corporate and White-Collar Crime. (3). Organizational and occupational crime in comparison to other types of criminality; emphasis on causes, frequency, control, and social impact.

6190. Terrorism: Social and Legal Perspectives. (3). Theoretical and ideological aspects of practice of and response to international and domestic terrorism; terrorism as crime from political, social, economic, historical, and legal perspectives.

6520. Substantive Criminal Law. (3). Substance of the crime, including common-law sources and basic principles, types of offenses, responsibility, justification and excuse, and related areas.

6531. Issues in Constitutional Rights. (3). Topical issues in constitutional law related to criminal defendants and incarcerated; exclusionary rule and its



alternatives, application of 1st Amendment to criminal law, legal status of confined persons (discipline, legal services, communications, medical aid), and liability of correctional and police officials; civil and criminal legal techniques for protecting and vindicating constitutional rights, such as *habeas corpus* and 42 USC 1983.

6533. Juvenile Delinquency: Theory and Process.

(3). Theories of juvenile delinquency, gang activities, and status offenses; history, organization, programs, and procedures of agencies charged with control and prevention of juvenile delinquency including police, juvenile units, juvenile courts, and juvenile correctional agencies.

7100-8100. Proseminar in the Criminal Justice System.

(3). Major functional components of criminal justice system from historical, philosophical, and systems perspective; analysis of interrelationships among components; impact of social and political forces on roles and functions of criminal justice agencies; review of research on operational goal attainment.

7110-8110. Individual Directed Study.

(1-4). Individual directed research/readings in special areas of interest in the field of criminal justice. **PREREQUISITE:** Permission of Coordinator of Graduate Studies. May be repeated for a maximum of 4 credit hours.

7120-8120. Criminal Justice Policy Formulation and Analysis.

(3). Theories, models, and methods of policy formulation and evaluation in criminal justice organizations; emphasis on utilizing social science methodologies in decision-making process and administrative problem solving within legal and budgetary constraints.

7128-8128. Research Methods in Criminal Justice.

(3). Principles of social science research as applied to the study of the criminal justice system. Sampling techniques and research strategies. Emphasis on the development of research skills enabling the student to conduct an independent research project.

7130-8130. Crime Analysis and Criminal Behavior.

(3). In-depth study of "normal crimes;" the analysis of the characteristics of the criminal, the victim, and the setting for specified offenses. The typical demographic and ecological elements of each type of crime with the purpose of providing a framework for analysis and comparison.

7150-8150. Internship in Criminal Justice.

(3-6). Experience in a criminal justice setting through assignment to an enforcement, judicial, or correctional agency under joint supervision of agency officials and university faculty. **PREREQUISITE:** Permission of Coordinator of Graduate Studies.

7160-8160. Seminar in Criminal Justice Administration.

(3). Theories of organization with emphasis on structures, principles, techniques, and processes of criminal justice agencies; factors affecting behavior within such organizations; motivation, leadership, group dynamics, conflict management, unionization, selection, training, performance evaluation, organizational change, and political factors in public agency operation.

7190-99-8190-99. Special Topics in Criminal Justice. (3). Systematic and comprehensive examination of important and timely issues and development in the field of criminal justice. May be repeated for a maximum of six hours.

7570-8570. Legal Issues in Criminal Justice Administration.

(3). Impact of legal issues on administration of criminal justice agencies with particular emphasis on torts, federal civil rights legislation, employee rights, EEOC and OSHA regulations.

7510-8510. Law and Society.

(3). Examination of law as a system of control and as a mechanism for the resolution of conflict. Relationship of law to political, economic, and social systems critically analyzed; the development of the legal profession.

7523-8523. The Concept of Criminal Law. (3). Social foundation and principles on which our system of criminal law is based.

†7996. Thesis. (1-6).

† Grades of S, U, or IP will be given.

ENGLISH

WILLIAM H. O'DONNELL, Ph.D., *Chair*
Room 467 Patterson Hall

THOMAS C. CARLSON, Ph.D.,
Coordinator of Graduate Studies

I. The Department of English offers programs of study leading to the Master of Arts degree and the Master of Fine Arts degree. Entering students will consult with a departmental adviser to plan their course of study. Students in the M.A. program will choose one concentration from the four offered: Linguistics, Literature, Writing, or English as a Second Language.

II. M.A. in English Degree Program

A. Program Prerequisites

A minimum of twelve (12) semester hours in upper division English courses, with a minimum grade point average of 2.5 in these courses. A score satisfactory to the Department on the Miller Analogies Test or the Graduate Record General Examination.

B. Program Requirements

1. A total of thirty-three (33) semester hours of course work for the student who elects not to write a thesis or a total of thirty (30) semester hours for the student who writes a thesis. At least twenty-four (24) hours must be in English courses at the 7000 level.

2. Two graduate courses (six (6) semester hours) in British Literature chosen from the following: 7211, 7212, 7213, 7214, 7221, 7222, 7226, and 7231.

3. A concentration of at least twelve (12) graduate hours, beyond the requirement in 2, in one of the following: Linguistics, Literature, or Writing, or eighteen (18) hours in English as a Second Language. Writing requires a 3 or 6-hour thesis.

4. Oral comprehensive examination for students who write a thesis, and a written comprehensive examination for those who do not.

5. Reading knowledge of French, German, Latin, Spanish, Italian, Russian or Greek to be demonstrated by (a) 12 semester hours credit at the minimum grade in each course of C, earned within the last five years prior to entry into the graduate school or by (b) reading examination by date of completion of 15 semester hours of graduate courses in English. Substitution of an alternate foreign language may be considered by the Graduate Studies Committee if the student demonstrates a thorough command of a language which will be essential in the development of the thesis. Substitution of proficiency in computer languages (12 semester hours or equivalent) may be considered by the Graduate Studies Committee for Writing concentration students, especially those with an interest in technical or professional writing. (Students intending to pursue a Ph.D. in English at another university are advised to develop a reading competency in at least one of the following: French, German, Latin, or Greek.)

6. Thesis (English 7996: 3 or 6 hours) — optional, except for the Writing concentration.

7. An average of 3.0 in all graduate English courses.

8. Each graduate teaching assistant in the Department of English must enroll in English 7003 at the first opportunity.

C. Collateral Area

1. *Prerequisite:* A minimum of 12 semester hours in upper division courses, with a minimum grade point average of 2.5 in those courses.

Students not majoring in English must have at least 12 semester hours of upper division English courses with at least a 2.0 average in those courses as a prerequisite for taking any graduate course in English course.

2. *Requirements:* A minimum of 12 semester hours in graduate English courses, at least 6 of which must be in courses numbered above 7000.

3. A 3.0 average in English courses.

III. M.F.A. in Creative Writing Degree Program

The Master of Fine Arts in Creative Writing provides studies in poetry and fiction. In addition to writing workshops, students take courses in literature and in the theory of writing, including English language and linguistics. A book-length thesis of publishable quality work is required; it will be directed by a member of the M.F.A. faculty. The M.F.A. requires 48 graduate semester hours, with a 3.0 grade point average in all graduate courses. At least 34 semester hours must be in courses numbered above 7000.

A. Admission

For admission to the M.F.A. program: A portfolio of writing samples, in the applicant's chosen genre (at least thirty pages of fiction or ten poems), demonstrating a potential for development to a professional standard of writing. The writing sample will be evaluated for writing potential, talent and commitment by a committee of M.F.A. faculty. The committee will recommend admission of those applicants with the highest demonstrated talent. Baccalaureate degree in English or twelve (12) semester hours of upper-division English. Miller Analogy Test (minimum score: 36) or Graduate Record General Examination (minimum verbal score: 450; minimum combined score: 750). **Deadlines: March 15 for the following fall semester admission and October 15 for following spring semester.**

B. General Course Prerequisite

For any graduate English course: A minimum of twelve (12) semester hours in undergraduate upper-division English courses, with a minimum grade point average of 2.5 in those courses.

C. Transfer Credit

Any applicant who holds an M.A. degree in English from another institution may transfer up to a maximum of twenty-four (24) semester hours in English earned for that degree to apply toward the M.F.A. degree. A student's advisor will insure that the combination of transfer credits and courses taken in the program has appropriate breadth.

D. Core Requirements

1. *Writing Workshops*— Twelve (12) semester hours selected from English 7602 (repeatable to 12 hours) and 7603 (repeatable to 12 hours), with at least nine (9) semester hours in the student's chosen genre. A student should enroll in one writing workshop in each of the first four semesters; a student is urged to take one workshop outside his or her chosen genre.

2. *Literature*— Twenty-one (21) semester hours selected from English 6120-6139 (literature or criticism topics), 6231, 6234, 6241, 6242, 6251, 6252, 6321, 6322, 6411, 6412, 6441, 6451, 7020-39 (literature or criticism topics), 7100 (literature or criticism topics, and approval of the Director of Creative Writing and the Coordinator of Graduate Studies), 7211, 7212, 7213, 7214, 7221, 7222, 7224, 7225, 7226, 7231, 7321, and 7322.

3. *Theory of writing and English Language/Linguistics*— Nine (9) semester hours selected from English 6120-6139 (theory of writing and/or English Language/Linguistics topics), 6602, 6604, 6605, 7001, 7002, 7003, 7020-7039 (theory of writing and/or English Language/Linguistics topics), 7100 (theory of writing and/or English Language/Linguistics topics, and approval of the Director of Creative Writing and the Coordinator of Graduate Studies), 7501, 7511, 7512, 7513, 7514, 7515, 7701, and 7702. The student's advisor will insure that the selections have appropriate breadth.

4. Reading knowledge of a modern foreign language.

5. Thesis (English 7996), six (6) semester hours.

6. Oral review of thesis.

E080 ENGLISH (ENGL)

†5500. *Language Skills for Internationals*. (3).

6100-09. *Special Topics in English*. (3). As announced each semester. Repeatable to a maximum of 6 hours when topics differ. **PREREQUISITE:** Permission of adviser.

6231. *Chaucer*. (3).

6234. *Milton*. (3).

6241. *The British Novel Through Austen*. (3).

6242. *The British Novel Since Scott*. (3).

6251. *British Drama to 1642*. (3).

6252. *British Drama Since 1660*. (3).

6321. *American Literature: Major Writers Before 1860*. (3). Study of 7 major writers before 1860, such as Poe, Hawthorne, Melville, and Whitman.

6322. *American Literature: Major Writers Since 1860*. (3). Study of 7 major writers after 1860, such as James, Twain, Eliot, and Faulkner.

6411. *European Literature to Renaissance*. (3).

6412. *European Literature since Renaissance*. (3).

6441. *European Fiction*. (3). Movements and writers important to development of Continental fiction from late 18th century to present.

6451. *Studies in Women and Literature*. (3). Literature and criticism by and about women.

6602. *Advanced Composition*. (3). Principles involved in writing clear expository prose. Emphasis on application of these principles; analysis of readings and of student's writing. Repeatable to maximum of 6 hours.

6604. *Forms of Poetry*. (3). A study of meters, forms, and types of poetry in English with attention to the principal traditions and critical ideas associated with the writing of verse in English.

6605. *Forms of Fiction*. (3). A study of how fiction works through analyzing the short story, the novella, and the novel with attention to historical developments.

7001. *Language and Composition*. (3). Studies in the craft of composition, with focus upon sound editorial practice and the writing and analysis of the varieties of expository prose.

7002. *Topics in Writing*. (3). Readings, lectures, and exercises in theory of written composition, with emphasis on teaching of writing and on development of writing programs.

7003. *Applied Theory and Practice in English Composition in College*. (3). Designed for graduate assistants teaching English 1101. Emphasis on the ways and techniques of teaching rudiments of English composition on college level. Required of and restricted to graduate teaching assistants.

7020-39. *Special Topics in English*. (3). Topics are varied and announced in *Schedule of Classes*.

7100. *Independent Study*. (1-6). Focuses on a selected topic dealing with language study or a literary form, theme, figure, or movement. Topic chosen by student and approved by student's adviser and Department Chair.

*7211. *Studies in Medieval Literature*. (3).

*7212. *Studies in Renaissance Literature*. (3).

*7213. *Studies in Seventeenth Century Literature*. (3).

*7214. *Studies in Restoration and Eighteenth Century Literature*. (3).

*7221. *Studies in the Literature of the Romantic Period*. (3).

*7222. *Studies in Victorian Literature*. (3).

7224. *Contemporary World Literatures in Translation*. (3). Contemporary non-English fiction in translation, primarily from non-Western European cultures; focus on major movements and writers.

7225. *Studies in Contemporary American Literature*. (3). Authors, works, genres, and literary styles in development of contemporary American literature.

7226. *Studies in Contemporary British and Commonwealth Literature*. (3). Authors, works, genres, and literary styles in development of contemporary British and Commonwealth literatures.

*7231. *Studies in Shakespeare*. (3).

*7321. *Studies in American Literature before 1860*. (3).

*7322. *Studies in American Literature from 1860 through WW II*. (3).

7501. *History of the English Language*. (3).

7511. *Introduction to Modern English*. (3). An introduction to the nature of language with emphasis on basic principles of English phonology and morphology with special attention to syntax. Emphasis on collecting and handling of linguistic data for research purposes.

7512. *English Syntax*. (3). Study of structures of Modern English from perspective of various contemporary theories to see how form and meaning are integrally related; emphasis on methods of investigating questions which need to be asked in exploring new territory.

7513. *Dialectology*. (3). Dialects and varieties of American English; emphasis on methods of analyzing data and techniques of eliciting responses to gain information about word forms, syntax, and pronunciation; social implications.

7514. *Sociolinguistics*. (3). Language use in relation to social interaction and power structures; inequality in varied environments; appraisal of methodologies used in gathering and analyzing data.

7515. *Language and Literature*. (3). Application of linguistic theory to analysis of literature, nature of literary language, and linguistic options open to writers.

7530. *Field Experience and Practicum in ESL*. (3, 6). Experience in observing and teaching, peer teaching, and work with an English as a Second Language (ESL) specialist.

7531. *Theory and History of ESL*. (3). Survey of relation of linguistic principles to second language acquisition.

7532. *Principles of Skills Assessment in ESL*. (3). (Same as CIED 7532). Application of theories of teaching second language skills with emphasis on testing in a second language.

7533. *Methods and Techniques of ESL in K-12*. (3). (Same as CIED 7533). Techniques and resources for working with children and adolescents for whom English is a second language. Certificated teachers seeking add-on endorsement in ESL must enroll in CIED 7800-012, after filing an application with the College of Education, Director of Professional Laboratory Experiences.

7535. *ESL Grammar*. (3). Grammatical systems and strategies of Modern English; analysis of structure of English which tend to cause difficulty for ESL/ESD speakers. Certificated teachers seeking add-on endorsement in ESL must enroll in CIED 7800-012, after filing an application with the College of Education, Director of Professional Laboratory Experiences.

7602. Fiction Workshop. (3-6). Emphasis on the examination and the discussion of fiction written by students. Repeatable to maximum of 12 hours. **PREREQUISITE:** Permission of instructor.

7603. Poetry Workshop. (3-6). Emphasis on the examination and the discussion of poetry written by students. Repeatable to maximum of 12 hours. **PREREQUISITE:** Permission of instructor.

7701. Historical Perspectives on Literary Criticism. (3). Synchronic and diachronic approaches to history of literary criticism, classical to modern.

7702. Contemporary Perspective on Literary Criticism. (3). Major movements in literary criticism of the twentieth century; topics vary, but emphasis given to contemporary theory and criticism.

7805. Foundations of Technical Writing. (3). Introduction to fields of technical, scientific, and corporate writing; relevant theories in the fields, including classical rhetoric, modern discourse theory, cognitive psychology, and semiotics; extensive practice in writing and analyzing technical documents.

7806. Research Methods in Technical Writing. (3). Bibliographic techniques and an introduction to empirical methodologies for the study of the writing process and the testing of written documents.

7807. Workshop: Government and Corporate Writing. (3). Textual and contextual analysis of the kinds of writing produced most often in government, law, and business; practice in writing correspondence, reports, briefs, manuals, and proposals.

7808. Workshop: Scientific and Technical Writing. (3). Textual and contextual analysis of the kinds of writing produced most often in industry and the academic research community; practice in writing documents such as technical proposals, reports, computer documentation, and papers for publication.

7809. Technical Editing. (3). Current practices in editing and publication in the field of technical communication; topics include copy-editing, substantive editing, author-editor relations, and the production process.

7810. Document Design. (3). Theory of visual and written communication, focusing on the problem of how to integrate graphics and written text; practice in design and desktop publishing.

7811. Internship in Professional Writing. (3). Appointed on the basis of qualifications and availability, student does a semester's work in technical, scientific, legal, government, or business writing and provides an extensive report and analysis. **PREREQUISITE:** 12 hours of graduate study.

† **7996. Thesis. (3-6).** A prospectus for the thesis must be approved by the student's adviser and the department chair before the student registers for this course. The completed thesis must be approved by at least two readers.

† *Grades of S, U, or IP will be given.*

*Courses designated *Studies* provide for specialized work in the designated area. Content and focus of *Studies* courses may vary from semester to semester. Students will be expected to engage in research leading to the production of substantial papers.

FOREIGN LANGUAGES AND LITERATURES

RALPH ALBANESE, JR., Ph.D., *Chair*
Room 375A Winfield Dunn Building

ANTONIO TORRES-ALCALÁ, Ph.D.,
Coordinator of Graduate Studies

I. The Department of Foreign Languages and Literatures offers a program leading to the Master of Arts degree in Romance Languages with concentration in either French or Spanish.

II. M.A. Degree Program

A student entering the program will be assigned a major adviser by the chair, and this adviser is to be consulted in all matters concerning the student's program of study. It is the student's responsibility to obtain from the department office copies of the Information Sheet and

the Required Reading List for detailed descriptions of requirements.

A. Program Prerequisites

1. A minimum of 18 upper-division semester hours or its equivalent in French, Spanish or a combination of the two.

2. A reasonable proficiency in the language of concentration, to be determined by the department prior to admission.

B. Program Requirements

1. A total of 30 semester hours for candidates writing a thesis.

2. A total of 33 semester hours for candidates not writing a thesis.

3. A minimum of 6 semester hours in the field of Romance languages and literatures outside the language of concentration. **NOTE:** Linguistics 7101 and/or Linguistics 7201 may be used to satisfy all or part of this requirement.

4. Nine semester hours may be taken in an approved collateral area.

5. At least 23 hours must be taken in 7000 level courses.

6. A reading knowledge of a foreign language other than that of the major. Normally this shall be demonstrated by achieving the forty-fifth percentile on the Graduate School Foreign Language Test (Educational Testing Service) in French, German, Russian, or Spanish. A student may also fulfill this requirement by achieving a grade of "B" or better in any of the following courses or their equivalents with the approval of the coordinator of graduate studies: French or German 4702-6702, or by demonstrating reading knowledge of a foreign language in a manner approved by the coordinator of graduate studies.

7. In addition to fulfilling the foreign language reading requirement, candidates whose native language is not English must achieve a minimum grade of 500 on the Test of English as a Foreign Language (TOEFL) prior to completion of course work and pass an examination of oral fluency administered by the department.

8. A comprehensive written examination after completion of all course work.

9. If a thesis is presented, an oral examination on the area of the thesis is required.

E100 LINGUISTICS (LING)

7101. Introduction to Linguistics I. (3). Nature of language; history of linguistic theory; morphology and syntax, concentrating on languages other than English.

7201. Introduction to Linguistics II. (3). Principles and applications of phonology, with major emphasis on languages other than English; historical linguistics, concentrating on Romance and Germanic languages; psycholinguistics, sociolinguistics, semantics.

E120 FRENCH (FREN)

5701. French for Reading Knowledge I. (3). Introduction to reading of French. Intensive drill in recognizing and interpreting grammatical structures, especially those peculiar to scholarly written language. Emphasis on vocabulary building and determining meaning of words not previously encountered. Reading of texts in French at sight or after preparation. No previous knowledge of French required. Credit may not be applied toward the number of hours required for any graduate degree except with the express permission of student's major department.

5702. French for Reading Knowledge II. (3). Further work in recognizing and interpreting grammatical structures. Reading of specialized scholarly texts. Credit may not be applied toward the number of hours required for any graduate degree except with the express permission of student's major department.

6301. French Phonetics. (3). The theory and practice of French sounds; especially recommended for teachers of French.

6302. Advanced French Grammar. (3). Practical, syntactical, and lexical usage of contemporary French.

6412. Seventeenth and Eighteenth Centuries. (3). Classical theatre and critical theories; essay, *nouvelle*, and *conte* in eighteenth century.

6413. Nineteenth Century French Literature. (3). Survey of literary movements and major authors with readings in all the major genres. **PREREQUISITE:** FREN 3301. **RECOMMENDED:** FREN 3411.

6414. Twentieth Century French Literature. (3). Survey of literary movements and major authors with readings in the novel, poetry, and theater. **PREREQUISITE:** FREN 3301. **RECOMMENDED:** FREN 3411.

7305. French Stylistics. (3). (6305). Way in which texts produce meanings; development of analytic and interpretative skills with which to read the textuality of literary writing and to determine devices which effect its particular expressiveness; examination of vocabulary, syntax structure, and rhetorical figures as literary convention and as deviation from convention.

7401. Old French Language and Literature. (3). Development of the French language from Latin to the early 13th Century. Readings include *La Chanson de Roland* and selections from the *romans courtois* of Chrétien de Troyes, the *Lais* of Marie de France, *le Roman de la Rose*, *Aucassin et Nicolette*, and *le Roman de Renart*. History of the liturgical and comic theatre. Lyric poetry of Charles d'Orléans and François Villon.

7421. The French Renaissance. (3). Changes in aesthetics, poetics, and philosophy as seen in the writings of l'Ecole Lyonnaise, the Pléiade, Rabelais, Montaigne, Calvin, de Navarre, Etienne Jodelle, and Robert Garnier.

7425. Classicism Prior to 1660. (3). Aesthetics and poetics of the baroque and preclassical periods. Selections from the writings of the précieux and baroque poets, Mairat, Rotrou, Saint-Sorlin, Scarron, Sorel, Cyrano de Bergerac. The theatre of Corneille; early comedies of Molière.

7426. Classicism After 1660. (3). The impact of Boileau and *l'Art poétique* in crystallizing classical principles and patterns. Masterpieces of Molière and Racine. Representative selections from masters of the other genres in this period of French literature.

7470-7479. Special Topics in French Literature. (3). Literary movements, individual authors, or groups of authors of the nineteenth and twentieth centuries.

7491. Seminar in French Literature. (3). Introduction to research through investigations of limited scope. May be repeated for credit.

7492. Research in French Studies. (1-6). May be repeated for credit toward the concentration in French up to a maximum of six hours.

7531. The Age of the Enlightenment. (3). Comprehensive study of literary trends and innovations within the major genres as related to liberal ideas underlying the philosophy of Montesquieu, Voltaire, Diderot, Rousseau, and their contemporaries.

7691. Bibliography and Methods of Research. (1). Examination of bibliographical aids for the study of French literature; problems involved in various types of research; and study of the presentation and documentation of scholarly writing. *Required of all graduate students.*

† **7791. The Teaching of French. (1).** Required of all graduate assistants in French. Credit for this course cannot be applied toward the M.A. in Romance Languages with a concentration in French.

† **7996. Thesis. (1-6).** The thesis in French carries six semester hours and must be approved by the candidate's thesis committee.

† *Grades of S, U, or IP will be given.*

E130 GERMAN (GERM)

5701. German for Reading Knowledge I. (3). Introduction to reading of German. Intensive drill in recognizing and interpreting grammatical structures, especially those peculiar to scholarly written language. Emphasis on vocabulary building and determining meaning of words not previously encountered. Reading of texts in German at sight or after preparation. No previous knowledge of German required. Credit may not be applied toward the number of hours required for any graduate degree except with the express permission of student's major department.

5702. German for Reading Knowledge II. (3). Further work in recognizing and interpreting grammatical structures. Reading of specialized scholarly texts. Credit may not be applied toward the number of hours required



for any graduate degree except with the express permission of student's major department.

6443. Major German Writers of the Twentieth Century. (3). Selected works of Hesse, Thomas Mann, Kafka, Frisch, Duerrenmatt, Brecht, and Boell. **PREREQUISITES:** GERM 3411, 3412; or permission of the instructor.

6451. The German Drama. (3). Dramatic literature from sixteenth to twentieth centuries with readings from Reformation, Baroque, Enlightenment, Sturm und Drang, Classicism, Romanticism, Realism, and modern period. **PREREQUISITES:** Two courses from GERM 3301, 3411, 3412 or permission of instructor.

E200 SPANISH (SPAN)

6302. Advanced Grammar. (3). Special problems in grammar. Required of all graduate assistants in Spanish and recommended for all M.A. candidates.

6306. Applied Spanish Linguistics. (3). (6501). Current research in linguistics, psycholinguistics, and sociolinguistics and their contribution to second-language teaching and second-language learning.

6410. Spanish Literature and Civilization. (3). Survey of literary movements and major figures with readings in literature and civilization. Required for all M.A. candidates.

6431. Contemporary Spanish Prose. (3). Spanish prose from the Generation of 1898 to present.

6432. Contemporary Spanish Poetry and Drama. (3). Spanish poetry and drama from the Generation of 1898 to the present.

6510. Spanish American Literature and Civilization. (3). Survey of literary movements and major figures with readings in literature and civilization. Required for all M.A. candidates.

6561. Pre-Contemporary Spanish American Prose Fiction. (3). Development of the Spanish American novel and short story from their beginnings through the early twentieth century.

6562. Contemporary Spanish American Prose Fiction. (3). The Spanish American novel and short story of the twentieth century. **PREREQUISITE:** SPAN 6510 or equivalent.

6790-99. Special Topics in Hispanic Literature and Linguistics. (3). Selected topics in Hispanic literature and linguistics. May include medieval literature, Golden Age, nineteenth century literature, and Spanish American drama. May be repeated for credit. **PREREQUISITE:** for literature courses: SPAN 6410 or 6510 or equivalent.

7301. Spanish Phonology. (3). (6301). Principles of analysis of the sound system of human language; general sound system (phonetics) of Spanish; and phonemic contrastive analysis of sound systems of Spanish and English.

7304. Evolution of Spanish. (3). (6304). General history of the Spanish language based on political and cultural history of Spain and Spanish America. History of sound system, grammatical structures, word borrowings, and changes in meaning.

7305. Spanish American Dialectology. (3). (6305). Fundamental notions of language variation, regional and social varieties, stylistic varieties and linguistic demography of general features of Latin American Spanish with respect to phonology, morphosyntax and semantics.

7420. Medieval Spanish Literature. (3). (6420). Reading of Old Spanish. Medieval Spanish literature from Mozarabic lyric through *La Celestina*.

7421. The Golden Age. (3). (6421). Spanish lyric poetry and drama of the sixteenth and seventeenth centuries.

7423. Cervantes. (3). (6423). *Don Quijote* and the *Novelas ejemplares*.

7430. eighteenth and nineteenth Century Spanish Literature. (3). (6430). Romantic and post-romantic poetry and drama. Costumbrismo and rise of regional novel, realistic novel, and naturalistic novel.

7532. Spanish American Drama. (3). (6532). Development of the drama in Spanish America, with an emphasis on the twentieth century. **PREREQUISITES:** Permission of instructor.

7591. Seminar in Spanish American Literature. (3). Topics in Spanish American literature designed to be of special interest for the advanced graduate student. May be repeated once for credit.

7691. Research in Hispanic Studies. (1-6). May be repeated for credit toward the concentration in Spanish up to a maximum of six hours.

†7996. Thesis. (1-6). The thesis in Spanish carries six semester hours and must be approved by the candidate's thesis committee.

† Grades of S, U, or IP will be given.

E211 LANGUAGES AND LITERATURES (LALI)

6010-19. Special Topics in Foreign Literatures. (3). Topics are varied and announced in *Schedule of Classes*.

GEOGRAPHY AND PLANNING

W. THEODORE MEALOR, JR., Ph.D.,
Chair and Coordinator
of Graduate Studies — Geography
Room 107 Johnson Hall

EARL E. PEARSON, JR., M.U.R.P.,
Director and Coordinator of Graduate
Studies — City and Regional Planning
Room 226, Johnson Hall

GEOGRAPHY

I. The Department of Geography offers graduate programs leading to the Master of Arts and the Master of Science degrees.

II. M.A. and M.S. Degree Programs

A. Program Admission

Admission to the Graduate School and the approval of the departmental chair and the departmental graduate faculty. Students not having undergraduate credit for cartography must take the course at its earliest offering. Students not having undergraduate credit in regional geography must include at least one regional course in their graduate program.

B. Program Requirements (M.A. and M.S.)

1. Satisfactory completion of GEOG 7801
2. Completion of either Option I or Option II
 - a. Option I: minimum of 27 semester hours and a six hour thesis
 - b. Option II: minimum of 36 semester hours and one research paper of professional quality and acceptable format
3. One three semester hour graduate course (6000 or 7000 level) from each of the core areas:
 - a. environmental and earth sciences: 61-- , 62-- , 71-- , 72-- numbered courses
 - b. human-economic geography: 64-- , 74-- numbered courses
 - c. geographic techniques: 65-- , 75-- numbered courses. Students not submitting acceptable undergraduate credit in quantitative methods or statistics will be required to take GEOG 6521.
4. Each student should submit a degree program plan to the graduate faculty after completion of 12 semester hours of graduate course work.
5. In consultation with the adviser, each student should select a guidance committee by the completion of 18 semester hours of graduate course work.
6. The thesis proposal should be submitted to the adviser by completion of 18 hours of graduate course work.
7. Successful completion of a comprehensive examination; not to be taken prior to the registration for the 24th semester credit hour. A separate defense of the thesis is required for those students electing Option I.

The M.S. degree will be awarded only to those students submitting a minimum of 12 semester hours of course work from the combined areas of environmental and earth science and geographic techniques.

E220 GEOGRAPHY (GEOG)

6111. Synoptic Meteorology I. (4). Basic weather parameters and atmospheric processes in weather analysis and forecasting. *Three hours lecture, two hours lab.* **PREREQUISITE:** GEOG 1101 or consent of instructor.

6112. Synoptic Meteorology II. (4). Advanced forecasting skills techniques and detailed specifics of weather forecasting, including severe weather and aviation forecasting. *Three hours lecture, two hours lab.* **PREREQUISITE:** GEOG 6111.

6115. Dynamic Meteorology I. (3). Fundamental forces applicable to large scale atmospheric motions, including circulation and vorticity. **PREREQUISITES:** MATH 1321, 2321, and PHYS 2511.

6116. Dynamic Meteorology II. (3). Continuation of GEOG 6115. Atmospheric oscillations, numerical

modelling from mathematical and physical orientation. **PREREQUISITE:** GEOG 6115.

6121. Earth Science: The Earth. (3). An analytical study of landforms, their changes and their uses to humans.

6122. Earth Science: The Soil. (3). Processes and dynamics of soil profile development. Major models of soil development examined and applied to soil genesis in Tennessee. Application of soil techniques to archaeology, planning, earth sciences, and soil conservation and erosion problems. Emphasis on field and laboratory techniques with field work in soil mapping and soil taxonomy. *Two lecture, two laboratory hours per week.*

6131. Earth Science: The Oceans. (3). An analytical study of the oceans to include their physical, chemical, and biological qualities; their movements, resources, climate influences, and their importance for transportation.

6201. Urbanization and Environment. (3). (Same as PLAN 6201). A study of the ways humans have changed the natural environment by urbanization and how physical features and processes influence the development and function of cities.

6211. Climatology. (3). Study of climatic elements and methods of data analysis; application of climatology in agriculture, health, economics, and architecture. **PREREQUISITE:** GEOG 6111 or consent of instructor.

6215. Physical Climatology. (3). Components of earth's energy balance; emphasis on solar radiation, heat transfer, and evapotranspiration. **PREREQUISITES:** GEOG 6211 and PHYS 2112 or equivalents.

6231. Water Resources. (3). (Same as PLAN 6231). Study of hydrologic processes and their application to needs of cities, industry, agriculture, and recreation.

6251. Environmental Threats to Human Survival. (3). A survey of environmental threats, some of which may threaten the very survival of the human species. The spectrum of threats ranges from planet-wide climatic changes and potential changes in earth-sun relationships to more immediate threats such as inadequate food production, local disasters, and nuclear contamination.

6304. Geography of Europe. (3). A geographic analysis of the lands west of the Iron Curtain.

6305. Geography of the USSR. (3). Regional analysis of Soviet Union and its satellites.

6306. Geography of Asia. (3). Significance of regional differences in Japan, China, and India, and a brief survey of the remaining areas.

6313. Geography of the United States and Canada. (3). Physical, cultural, and economic characteristics of the United States and Canada.

6316. Geography of the South. (3). Selected regions in the South with emphasis on changes and trends in the cultural-physical complex.

6324. Geography of Middle America. (3). Regions and resources of Mexico, Central America, and the West Indies as they relate to present and potential economic development.

6325. Geography of South America. (3). Regional economics, resources, and trade in the continent, with stress upon the changing significance of the landscape as related to national and international problems.

6431. Urban Geography. (3). Allocation of land for urban uses; the adjustments and adaptations to existing physical phenomena; the patterns, functions, and forms of specific urban land areas; and some of the continuous problems of urban development and growth.

6442. Geography of Business and Industrial Location. (3). Geography of retailing, wholesaling, and manufacturing; emphasis on locational analysis of selected business enterprises.

6443. Transportation Planning. (3). (Same as PLAN 6443). Planning for various transportation modes and networks and impact on urban land-use and contemporary development problems.

6453. Geography of Food and Agriculture. (3). An analysis of the ability of earth-surface areas to produce food necessary to sustain a rapidly growing world population. Includes environmental constraints which tend to limit food production and produce food supply crises.

6502. Computer Mapping. (3). (Same as PLAN 6502). Instruction in use of computer mapping programs as effective techniques for visual presentation of a wide variety of data. *Two lecture, two laboratory hours per week.*

6503. Map Production. (3). Scribing, color separation, printing, and darkroom processes. *Two lecture, two laboratory hours per week.* **PREREQUISITE:** BASIC, FORTRAN, or other computer language.

6510. Aerial Photo Interpretation. (3). (Same as GEOL 6510). Systematic treatment of elements and steps involved in interpreting, measuring, and mapping of images appearing on aerial photographs. *Two lecture, two laboratory hours per week.*

6511. Remote Sensing of the Environment. (3). (Same as GEOL 6512). Survey of theory and application; using color infrared, thermal, and radar images generated from aircraft and satellites for geographic, environmental, and planning purposes. *Two lecture, two laboratory hours per week.* **PREREQUISITE:** GEOG 4510/6510 or consent of instructor.

6514. Geographic Information Systems. (3). Role and nature of using interactive computer mapping for decision support in resource management; structure and use of spatial databases in the decision process. *Two lecture, and two laboratory hours per week.*

6521. Quantitative Methods. (3). (Same as PLAN 6521). Introduction to quantitative methods in spatial analysis. **PREREQUISITE:** Permission of instructor.

6531. Field Methods. (3) Basic methods of geographic analysis used in classifying, analyzing, and reporting field generated data including field mapping, sampling procedures, questionnaires, and archival and public document research. *One and one-half lecture, three hours laboratory hours per week.*

6610-19. Special Topics in Geography. (1-3). Topics are varied and announced in *Schedule of Classes*.

†6700. Geography Internship. (1-9). Provides opportunity to gain experience working with an agency in which geographic knowledge can be utilized. Repeatable to a maximum of 9 hours.

7111. Seminar in Climatology. (3). Field measurements and analyses of energy and water budget factors and application of climatological models.

7120. Seminar in Geomorphology. (3). Analysis and application of major geomorphic models; threshold, episodic, time-space, systems, and magnitude; frequency principles examined in both classroom and field; dating techniques applied to geomorphic interpretations; individual and team projects required.

7122. Seminar in Soils. (3). Major pedologic and soil geomorphic models; field and laboratory techniques applied to soil erosion, ecologic, geomorphic, and archeologic problems; paleopedology and environmental reconstruction; soil mapping techniques; individual and team field projects required.

7221. Seminar in Conservation. (3). Conservation problems including deforestation, soil erosion, degradation of wetlands by sedimentation, and urban-induced environmental changes; emphasis on human interaction and ecosystem pollution; application of environmental principles and systems concepts to solving problems; field work required.

7231. Seminar in Water Resources. (3). Issues, problems, and research on selected topics of surface and groundwater, water uses, and fluvial process.

7301. Seminar in Regional Geography. (3). Regional analysis of selected areas of world including: the U.S., Canada, Europe, Soviet Union, Middle America, South America, Asia, Africa, and Oceania. May be repeated with a change in content for a total of six hours.

7302. Environmental Analysis Seminar. (3). (Same as PLAN 7302). Analytical and qualitative critique of the physical environment with emphasis on environmental quality, including air and water quality standards, soil erosion, solid waste management, and nuisance control.

7316. Seminar in the U.S. South. (3). Systematic analysis of distinctive physical and human phenomena characteristic of the U.S. South.

7430. Seminar in Economic Geography. (3). Selected topics in economic geography. Subjects studied will vary. May be repeated with change in content for a total of 6 hours credit.

7431. Seminar in Urban Geography. (3). A study of the spatial aspects of urban development and the analysis of selected urban problems.

7434. Seminar in Land Use. (3). Systematic analysis of suburban and rural land use characteristics, patterns, and problems. Focus on U.S.

7441. Population Geography. (3). A survey of the density, distribution, migrations, trends, and settlement patterns of world population.

7471. Cultural Geography. (3). A systematic analysis of the manner in which selected culture traits interact with other patterned phenomena to produce distinctive geographic landscapes. Individual student study on selected problems is an integral part of this course.

7502. Seminar in Computer Mapping. (3). Emphasis on automated process of map design, compilation, and production. New procedures, including recent advances in hardware and software for mapping purposes.

7503. Seminar in Cartography. (3). Emphasis on current research in mapping. Major topic: use of maps as a communications device, with a language of graphic symbols.

7504. Seminar in Geographic Information Systems. (3). (Same as PLAN 7504). Implementation and management of GIS technology; design, automation, and applications to landuse and natural resource inventories.

7511. Seminar in Remote Sensing. (3). Use of remote sensing technology for solving environmental problems; state-of-the-art techniques and methods of image processing.

7621. Independent Study. (1-3). Independent investigation of a research problem selected in consultation with the instructor. May be repeated for a maximum of 6 credit hours.

7801. Geographic Thought and Methodology. (3). Introduces student to major philosophies of geography and to methods of geographic research.

7811. Geography for Teachers. (3). Application of geographic principles in teaching social studies and earth sciences. Emphasis on geography of Memphis and Mid-South.

†7996. Thesis. (1-6). Student must research, write, and defend a thesis on a topic approved by major professor and advisory committee.

† *Grades of S, U, or IP will be given.*

CITY AND REGIONAL PLANNING

I. M.C.R.P. Degree Program

A. Program Admission— Applicants must satisfy admission standards of the Graduate School and receive favorable endorsement from the planning faculty. Admission will be based on applicable test scores (GRE or MAT); undergraduate grade point average; previous education and/or experience; and ability to articulate career and education objectives.

B. Program Prerequisite— Students are accepted from all undergraduate disciplines and professional areas; however, the department determines if students must do remedial work. Some credit may be granted by the department for remedial work if obtained at the graduate level after entering the program.

C. Program Requirements— The student is required to complete a minimum of 48 semester hours. Thirty (30) hours are taken in the core curriculum and 15 hours are electives which lead to a 3 hour Capstone Project. The fifteen 15 hours of electives allow the student to extend basic knowledge gained in the core curriculum and can include such subjects as economic development planning, urban design, land use and transportation planning, planning information systems, housing and community development planning, planning law, and environmental planning.

The 3 hour Capstone Project, submitted as a written report and orally defended, is required of all majors as a terminal experience designed to demonstrate a student's mastery of planning process and substance.

The comprehensive examination must be successfully completed at the end of the semester in which the student expects to graduate.

D. Transfer of Credits—The Director may recommend to the Graduate Dean credit for planning course work successfully completed at other institutions but not to exceed 12 semester hours. For those students formerly enrolled in graduate planning programs accredited by the Planning Accreditation Board, a maximum of 24 hours in planning course work may be approved.

E. Planning Profession—Planning uses a multidisciplinary approach to solve urban and regional problems. As such planning is concerned with the spatial arrangement and interaction of human activity systems in urbanized areas and enables the arrangement of facilities and programs in an optimal and comprehensive way. As a professional practice, planning is concerned with guiding the growth and development of cities and regions toward desired objectives. Planning increases the effectiveness of public and private decision-making by giving careful consideration to goal formulation, the collection and organization of information and knowledge, and the design of policies and programs. The curriculum is intended to provide the basic knowledge and skills in theory, techniques, methods and practice. The program is a full member of the Association of Collegiate Schools of Planning, and its degree is accredited by the Planning Accreditation Board.

E230 CITY AND REGIONAL PLANNING (PLAN) CORE CURRICULUM

6521. Quantitative Methods. (3). (Same as GEOG 6521). An introduction to quantitative methods in spatial analysis.

7000. Introduction to Planning. (3). Planning trends in United States and abroad, including land use planning, developmental planning, social planning, transportation planning, community facilities planning, and planning as a governmental activity at the local, state and federal levels.

7002. City Planning Principles and Theory. (3). The fundamental principles and theory of urban and regional planning with emphasis on comprehensive planning processes and appropriate theoretical foundations.

7004. Land Use Controls. (3). Restrictions on land uses, including codes and ordinances governing zoning, site planning, the subdivision of land, and performance standards.

7006. Comprehensive Planning Studio. (3). Individual and group practice in collection, analysis, and presentation of field data on selected planning problems.

7007. Special Projects Studio. (3). Individual and group planning for development of major public and private projects.

7008. Site Planning. (3). Laboratory course in methods and techniques of land planning.

7011. Financing Community Development. (3). Model building with regard to aggregating and allocating funds; prioritizing, project packaging and leveraging as part of plan implementation.

7012. Methodology and Techniques in Planning I. (3). Study, collection and evaluation of economic, social, land use and environmental resources fundamental to the comprehensive planning process.

7202. Land Use Planning. (3). Contemporary methods of land use analysis and determination of spatial requirements with emphasis on measuring social and economic costs of land use decisions.

ELECTIVES

6201. Urbanization and Environment. (3). (Same as GEOG 6201). A study of the ways humans have changed the natural environment by urbanization and how physical features and processes influence the development and function of cities.

6231. Water Resources. (3). (Same as GEOG 6231). Study of hydrologic processes and their application to needs of cities, industry, agriculture, and recreation.

6443. Transportation Planning. (3). (Same as GEOG 6443). Planning for various transportation modes and networks and impact they have on urban land use and contemporary development problems.

6502. Computer Mapping. (3). (Same as GEOG 6502). Instruction in use of computer mapping programs as effective techniques for visual presentation

of a wide variety of data. *Two lecture, two laboratory hours per week.* PREREQUISITE: BASIC, FORTRAN, or other computer language.

7003. Legal Aspects of Planning. (3). Introduction to legal framework of planning, including state enabling legislation, land use regulations, judicial decisions affecting land development, and selected aspects of housing law.

7101. Regional Planning. (3). Area and region delineation, regional planning organization, the various levels of planning, the functions and problems of regional plan preparation and plan implementation.

7201. Community Facilities Planning. (3). Planning the location and design of community facilities in the light of changing concepts of public service and community organization.

7204. Urban Revitalization Planning. (3). Changing urban land uses, first in areas which must improve or rebuild obsolete patterns, functions, and forms; and second in areas with acceptable uses, structures, and institutions, which in the interest and welfare of all the people must have additional space for growth and expansion.

7205. Seminar in Urban Design. (3). History and theory of urban form and implications for the design of cities; survey of urban design techniques.

7206. Housing. (3). Survey of housing market characteristics, financing, development, preservation and redevelopment from both public and private perspectives.

7302. Environmental Analysis Seminar. (3). (Same as GEOG 7302). Analytical and qualitative critique of the physical environment with emphasis on environmental quality, including air and water quality standards, soil erosion, solid waste management, and nuisance control.

7504. Seminar in Geographic Information Systems. (3). (Same as GEOG 7504). Implementation and management of GIS technology; design, automation, and applications to land use and natural resources inventories.

7701. Research Problems. (1-3). Independent investigation directed toward research problems in city and regional planning. May be repeated for a maximum of 3 hours credit.

7708. Planning Practice. (3). Practical skills in operating a planning office in both public and private sectors. PREREQUISITE: Approved planning experience.

†7896. Capstone Project. (1,2,3). Preparation of a research paper that exhibits mastery of process and substantive area of planning.

† Grades of S, U, or IP will be given.

GEOLOGICAL SCIENCES

PHILI DEBOO, Ph.D., *Chair*

Room 402, J. M. Smith Building

EUGENE S. SCHWEIG, Ph.D., *Coordinator of
Graduate Studies*

I. The Department of Geological Sciences offers a graduate program leading to the Master of Science degree with a major in Geological Sciences with concentrations in Geology and Geophysics.

II. M.S. Degree Program

A. Program Admission

1. Acceptable score on Graduate Record aptitude test.
2. An undergraduate degree in geological sciences, physics, or mathematics. Students holding a bachelor's degree in other disciplines will be considered on an individual basis.

B. Program Requirements

1. 2 semester hours selected from Seminar in Geology (GEOL 7701) and Seminar in Geophysics (GEOP 7701).
2. *Geology Concentration:* 12 semester hours selected from Geology courses (GEOL). Students may be required to make up deficiencies as determined on an individual basis.

Geophysics Concentration: 12 semester hours selected from Geophysics courses (GEOP). Students from outside geological sciences will be required to make up deficiencies in Structural Geology (GEOL 3512) and Field Geology (GEOL 4622). Other courses may be required to make up deficiencies as determined on an individual basis.

3. Thesis (GEOL 7996 or GEOP 7996) 6 semester hours.

4. Electives selected in consultation with the major professor to complete 32 semester hours.

E235 GEOLOGY (GEOL)

6010-19. Special Topics in Geological Sciences. (3). Topics vary and are announced in the *Schedule of Classes*.

6100. Petroleum Geology and Basin Analysis. (3). Application of geologic principles to the search for economic accumulations of oil and gas. Lab emphasis on prospect selection using subsurface techniques. Lecture emphasis on depomodels and depositional systems. *Two lecture, two laboratory hours per week.*

6202. Geomorphology. (4). Description, origin, and interpretation of landforms and their relationships to underlying structure and geologic history; processes acting on earth's surface including active tectonics, weathering, mass-wasting, climate change, and fluvial, shoreline, and glacial processes. *Three lecture, two laboratory hours per week.* PREREQUISITE: GEOL 1201.

6211. Physical Hydrogeology. (3). Physical hydrogeology and development of groundwater; groundwater in hydrologic cycle; aquifer characteristics and tests. *Two lectures and two laboratory hours per week.* PREREQUISITES: GEOL 1101.

6322. Petrology. (4). Description and interpretation of igneous and metamorphic rocks through study of thin sections. *Three lecture, two laboratory hours per week.* PREREQUISITE: GEOL 3302 or equivalent.

6332. Introduction to Geochemistry. (3). Geological and chemical processes which govern or control the migration and distribution of the elements and atomic species in the earth in space and time. *Three lecture hours per week.* PREREQUISITE: Consent of instructor.

6341. Aqueous Geochemistry. (3). Physical chemistry of aqueous solutions as it applies to geochemical processes on earth's surface. PREREQUISITE: CHEM 1112.

6342. Environmental Geochemistry. (3). Presents detailed discussion of geochemical reactions and processes as they relate to specific environmental problems. PREREQUISITE: 6341 or consent of instructor.

6350. Crystallography and Crystal Structure. (3). Mathematical crystallography and crystal physics; tensor properties of solids and their relation to crystal symmetry; crystal chemistry and structural groups of solids. *Two lecture, two laboratory hours per week.* PREREQUISITES: CHEM 1111, 1112; MATH 2322; PHYS 2511, 2512.

6351. Advanced Structural Geology. (3). (GEOL 6642). Analysis of crustal structures: stress and strain in rocks, mechanical behavior of earth materials, mechanical interpretation of crustal structures. PREREQUISITE: GEOL 3512, MATH 1321.

6510. Aerial Photo Interpretation. (3). (Same as GEOG 6510). Systematic treatment of elements and steps involved in interpreting, measuring, and mapping of images appearing on aerial photographs. *Two lecture, two laboratory hours per week.*

6511. Economic Mineral Deposits. (3). Origin, occurrence, and composition of metallic and non-metallic mineral deposits. *Three lecture hours per week.* PREREQUISITES: GEOL 2312 and 3512.

6512. Remote Sensing of the Environment. (3). (Same as GEOG 6511). Survey of theory and application of using color, infrared, thermal, and radar images generated from aircraft and satellites for geographic, geologic, environmental, and planning purposes. *Two lecture, two laboratory hours per week.* PREREQUISITE: GEOG 6510 or consent of instructor.

6701. Spring Field Trip. (1-2). Conducted field trips during spring vacation. About 30 hours of field work will follow 2-4 hours of lectures. Open to non-majors.

Among the areas which may be included are Ouachita-Arbutle-Wichita mountains of Oklahoma; Ouachita, and adjacent mineral districts; central and southern Appalachians; and Gulf Coastal Plain. Check *Schedule of Classes* for specific location. NOTE: May be repeated three times when location varies. A total of no more than 8 hours credit may be earned.

7010-19. Special Topics in Geology. (1-3).

7102. Electron Beam Analysis. (3). Introduction to scanning electron microscopy and electron beam microanalysis. One lecture, four laboratory hours per week.

7202. Quarternary Geology. (3). Review of geomorphologic, stratigraphic and geochronologic methods used to understand global glacial and interglacial climate fluctuations during last two million years.

7301. Geologic Data Analysis. (3). (6301). Use of the computer and teletype in data file construction and management, use of file with various programs, and use of statistical tests, regression lines, maps, and a classification of data sets with the aid of the computer. Two lecture and two laboratory hours per week.

7311. Tectonics. (3). Principles and geometry of plate tectonics; development of plate tectonic theory; relationship between plate motions and regional tectonics; structural, stratigraphic, magmatic and geophysical features of various tectonic regimes.

7312. Tectonics of North America. (3). Tectonic and stratigraphic development of North America with special emphasis on United States. PREREQUISITE: GEOL 7311 or consent of instructor.

7313. Neotectonics. (3). (6312). Geological and geophysical methods for study of Quaternary and contemporary tectonics; tectonic interpretation of structural, geomorphic, and sedimentary features; dating techniques; regional faulting patterns, geodesics, state of stress in the earth, focal mechanisms, earthquake recurrence; case studies. PREREQUISITE: GEOL 3512 or consent of instructor.

7321. X-Ray Diffraction Techniques. (3). The application of x-ray diffraction techniques to crystallographic problems. One lecture, four laboratory hours per week. PREREQUISITE: Consent of instructor.

7323. Metamorphic Petrology. (3). Classification and description of metamorphic rocks and relationships of physical and chemical processes that control their mineralogy and texture. Two lecture, two laboratory hours per week.

7340. Clay Mineralogy. (3). The origin, occurrence and properties of well-crystallized and fine-grained layer silicates and related minerals are discussed in terms of their chemical and structural variations. PREREQUISITE: Consent of instructor. Two lecture, two laboratory hours per week.

7342. Paleocology and Biostratigraphy. (3). (6342). Zonal distribution, facies analysis and paleoecology of fossils and their application to problems of earth history and depositional environments; emphasis on fossil fuel bearing sediments.

7352. Sedimentary Petrology. (4). Examination of sedimentary rocks in the field, in hand specimen, and through the microscope with the view of explaining sedimentary rock classification, the post depositional changes that occur in sediments and the bearing of these factors on geology as a whole. PREREQUISITE: Consent of instructor. Two lecture, two laboratory hours per week.

†7360. Advanced Study in Mineralogy and Crystallography. (1-4). Directed laboratory or field research project selected in consultation with instructor. Report required. Hours and credits to be arranged.

†7370. Advanced Study in Petrology. (1-4). Directed laboratory or field research project selected in consultation with instructor. Report required. Hours and credits to be arranged.

†7380. Advanced Study in Geomorphology. (1-4). Directed work selected in consultation with instructor. Hours and credit to be arranged.

†7710. Advanced Study in Tectonics. (1-4). (7510). Directed laboratory or field research project selected in consultation with instructor. Report required. Hours and credits to be arranged.

7701. Seminar in Geology. (1). (7631).

†7996. Thesis. (1-6).

† Grades of S, U, or IP will be given.

E237 GEOPHYSICS (GEOP)

6101. Introduction to Geophysics. (3). Fundamental topics include: earth's age and thermal state; main gravity and magnetic fields; dynamic models of earth's interior; comparison of terrestrial planets. PREREQUISITE: PHYS 2111 and MATH 1321.

6201. Applied Geophysics. (4). Survey of geophysical prospecting methods, seismic reflection and refraction techniques, and electrical, magnetic, and gravity field measurements; emphasis on fundamental principles governing acquisition and interpretation of geophysical data. Three lecture, two laboratory hours per week.

6401. Introduction to Seismology. (3). Wave propagation in the earth; elasticity, elastic wave equation, vibrations and waves, body and surface elastic waves, seismic rays, reflection and refraction of seismic waves, and the earthquake source. Two lecture, two laboratory hours per week. PREREQUISITE: MATH 6391 or consent of instructor.

7010-7019. Special Topics in Geophysics. (1-3).

7112. Advanced Geophysics. (3). Aspects of global geophysics. Emphasis on internal properties of earth as revealed by seismic waves, studies of earth gravity and magnetic fields and earth's thermal regime. PREREQUISITE: GEOP 6101 or consent of instructor.

7353. Geodynamics. (3). Continuum physics and its application to geophysical transport processes, stability analysis of thermal and fluid systems; development of quantitative models to describe geophysical phenomena. PREREQUISITE: GEOL 6351 or consent of instructor.

7375. Methods of Mathematical Physics I. (3). (Same as MATH 7375). Vector space, matrices, tensors, vector fields, function spaces, differential and integral operators, transform theory, partial differential equations. PREREQUISITE: MATH 3391, 4242 and 4350 or permission of the instructor.

7376. Methods of Mathematical Physics II. (3). (Same as MATH 7376). Complex variables, asymptotic expansions, special functions, calculus of variations, additional topics on matrices and operators, topics in non-linear analysis. PREREQUISITE: MATH 7375.

7402. Earthquake Seismology. (3). Advanced theory and observation of body and surface waves, reflection and refraction, free oscillations of the earth, earthquake location, ray tracing, inversion theory, earthquake source mechanisms, moment tensors, induced seismicity, seismic gaps, earthquake cycle, and strong motion seismology. PREREQUISITE: GEOP 6401 or consent of instructor.

7440. Seismotectonics. (3). Examination of the role of earthquake seismology in understanding active tectonic features on or near the surface of the earth. PREREQUISITE: GEOP 6401 or consent of instructor.

7512. Geomagnetism and Paleomagnetism. (3). (GEOL 7356). Description of earth's magnetic field, its sources, intensity, and variation in time; history of magnetic field, principles of rock magnetism and paleomagnetism, application of paleomagnetism to tectonic problems.

7602. Geophysics Time Series Analysis. (GEOL 7358). Fundamentals of digital processing of geophysical data, both purely mathematical and applied aspects with attention to digital seismograms and gravity and magnetic data.

7701. Seminar in Geophysics. (1). (GEOL 7641).

†7750. Advanced Study in Geophysics. (1-4). (GEOL 7550). Directed work selected in consultation with instructor. Report required. Hours and credit to be arranged.

†7996. Thesis. (1-6).

† Grades of S, U, or IP will be given.

HISTORY

ABRAHAM D. KRIEGLER, Ph.D., *Chair*
Room 100 Mitchell Hall

JOSEPH M. HAWES, Ph.D., *Coordinator of*
Graduate Studies

I. The Department of History offers programs of study leading to the Master of Arts degree and the Doctor of Philosophy degree with a major in History.

II. M.A. Degree Program

The M.A. program of study in history is a flexible one which prepares students for a variety of careers. Students who regard the M.A. as a terminal degree normally elect to fulfill its requirements by 33 hours of course enrollment without writing a thesis. Most of these students go on to teaching positions on the secondary and community college level; a lesser number enter government service at all levels; and some secure specialized positions in business, industry, and journalism. Those students preparing for teaching on the university level or related careers in research and writing should look upon the M.A. program as preparation for advanced graduate study. They are thus strongly urged to fulfill the requirements of the M.A. program by the preparation of a thesis.

A. Program Prerequisites

The student is required to have a minimum of 18 semester hours in undergraduate history. In special cases an exception may be made with the approval of the Graduate School and the Graduate Coordinator in History.

B. Program Requirements

1. A total of 33 hours for the student who elects not to write a thesis.
2. A total of 30 hours for the student who elects to write a thesis, with 6 hours of credit being assigned to the thesis.
3. No more than 21 hours may be taken in any one field of history (United States, Europe, Latin America).
4. No more than 9 hours may be taken at the 6000 level.
5. A maximum of 6 hours may be taken in a field outside history, with the approval of the Graduate Adviser.
6. History 7000 and a 7070 seminar must be completed by each student. All students who do not write an M.A. thesis are required to complete on additional 7070 seminar.
7. A comprehensive examinations over course work given by a committee chosen by the Graduate Adviser and the student, and approved by the Graduate Studies Committee.
8. Thesis approval by a department committee headed by the faculty member who directed the preparation of the thesis.

III. Ph.D. Degree Program

The Department of History also offers a program of study built upon the M.A. degree leading to the Ph.D. degree. The program is designed to provide wide knowledge in three fields, more intensive preparation in a fourth field, and professional competence in original research and writing that will prepare the student for teaching and research in higher education or for a career in government, business, library service, and other research related fields.

A. Advising. Students admitted into the Graduate School will be advised in the first enrollment by a faculty member assigned by the Coordinator of Graduate Studies. This enrollment does not, however, constitute a commitment by the Department of History to accept the student into the Ph.D. program. Formal admission into the program comes through the process described below. When the student is formally admitted into the program, the Coordinator of Graduate Studies will assign a permanent adviser.

B. Program Admission. No student will be admitted into the Ph.D. program who has not earned an M.A. or other advanced degree from an accredited institution. During the first semester of enrollment, following completion of the M.A., a student must apply to the Coordinator of Graduate Studies for formal admission into the Ph.D. program. The student will normally be expected:

1. To possess a grade point of 3.25 (on a 4.0 scale) for all graduate history work.
2. To submit scores on the Graduate Record Examination acceptable to the Department of History.
3. To pass a Qualifying Examination to determine the adequacy of the student's knowledge over past work and to diagnose strengths and weaknesses for the purpose of advising on further course enrollment. The Comprehensive Examination given to the student for the M.A. degree at Memphis State may, upon recommendation of the examining committee and in accordance with the policies recorded in the department's "Guide for Graduate Students in History at

Memphis State University", serve in lieu of the Qualifying Examination.

If the Graduate Studies Committee approves the admission of the student into the Ph.D. program, the Coordinator of Graduate Studies will formally notify the Graduate School Office of the student's "early doctoral" status in the program.

C. Foreign Language. The student must demonstrate reading proficiency in one foreign language. Proficiency will be demonstrated by the student's ability to read and interpret a selection from a historical work or source assigned by the dissertation committee. At the option of the student's dissertation director, the student may be required to demonstrate reading knowledge in two foreign languages.

D. Fields of Study. The student will choose, in consultation with the adviser, four fields of study. One will be designated the dissertation field. Normally the student will complete approximately thirty semester hours of credit in this field, including twelve hours of dissertation. In each of the three minor fields, the student will complete approximately twelve to fifteen hours of credit. With the approval of the adviser, and the formal approval in writing of the Coordinator of Graduate Studies, the student may choose one minor field of study outside history. The fields in history are: Ancient, Medieval-Renaissance, Early Modern Europe, Modern Europe, Britain, United States before 1877, United States after 1877, Latin America, Africa, and East Asia.

E. Course Requirements. The Department of History considers 60 hours of graduate course enrollment, exclusive of dissertation hours, to be the normal amount required for the Ph.D. degree. Course work completed for the M.A. degree may be credited toward the 60 hour total. In all cases, at least 36 hours of regular course work must be taken in residence at Memphis State, distributed among the fields of study in a way best suited to meet the student's background and to prepare for the Comprehensive Examination. At least 12 hours of this enrollment must be in research seminars. History 8000 and History 8011, or their equivalent, are required of all students. History 8012 (Directed Readings) may be repeated for a total of 6 hours of credit. A student who makes a grade lower than "B" in more than 6 hours of course work will be dropped from the Ph.D. program.

F. Comprehensive Examination. When the course work has been essentially completed, the language requirement satisfied, and other foregoing requirements met, the student will take a Comprehensive Examination over all fields. The examination will be given by a Comprehensive Committee selected by the adviser and student and approved by the Graduate Studies Committee. The Comprehensive Committee should be composed of one faculty member from each minor field and two faculty members from the dissertation field. On the written part of the examination, six hours will be allotted to the dissertation field and four hours to each of the minor fields. Any part of the written examination not passed may be taken over one time. A second failure will result in a meeting of the Comprehensive Committee to determine if the student should be dropped from the program, or it may, by a 4/5 vote waive such a failure. A follow-up oral examination will be completed within a period of two weeks, but in exceptional cases, the Comprehensive Committee may extend the time.

G. Dissertation. To complete the requirements for the Ph.D. in History, the student must prepare a dissertation based on a substantial amount of original research and submitted in the acceptable form. The dissertation topic will be determined by the student in consultation with a faculty member in the dissertation field who agrees to direct the research. Formal approval of the dissertation will be given by a Dissertation Committee chaired by the director and composed of at least two other faculty approved by the Graduate Studies Committee. The student will be given 12 hours of History 9000 credit for the dissertation.

E240 HISTORY (HIST)

6020. Internship in History. (3-12). Supervised internships working with various governmental agencies, private foundations or businesses of interest to historians. May be repeated for a maximum of 12 hours credit. **PREREQUISITE:** Permission of department.

6050-59. Special Topics in History. (1-3). Intensive study of selected topics in History. Topics announced in *Schedule of Classes*.

6126. Victorian and Edwardian England. (3). Social, political, and cultural adjustments of England to the experience of industrialization in nineteenth and early twentieth centuries.

6145. History of Modern Germany. (3). Germany from the origins of the unification movement in the Napoleonic Era through the Second World War.

6160. Russia to 1917. (3). Russia from earliest times to 1917, with special emphasis on the rise of serfdom and autocracy and the evolution of the Revolutionary Movement.

6162. History of the Soviet Union. (3). The 1917 Revolution and the major developments in government, economy, cultural and social life, and international affairs which followed.

6163. History of Socialism and Marxism. (3). Socialist and Marxist thought and the rise of socialist and Marxist social and political movements in Europe, Russia, and the Far East. The unique social, economic, and political conditions which gave rise to the experimentation with and the application of Marxism.

6200. History of Spain. (3). Spanish institutions, culture and politics from ancient times to the present.

6240. History of Mexico. (3). Political, economic, social, and cultural development of Mexico from ancient times to the present.

6250. History of Brazil. (3). Political, economic, social, and cultural development of Brazil from early times to the present.

6260. The World Since 1945. (3). Global, ideological, economic and political developments since World War II. Emphasis on rising affluence of industrial free market, movement of former colonies to independence, and growth in diversity among the Soviet bloc nations.

6281. Africa South of the Sahara. (3). Major emphasis on black Africa in the nineteenth and twentieth centuries. The age of Imperialism and the impact of the West on Africa; the colonial policies of the European powers; the rise of the nationalist movements; the problems of newly independent nations; the role of African countries in world affairs.

6282. The History of North Africa. (3). Major emphasis on the nineteenth and twentieth centuries. The extension of European influence and control; the rise of nationalist movements; the role of these areas in world affairs.

6283. The History of Southern Africa. (3). The course of European colonization and its impact on the African people from 1652 to date in the Republic of South Africa, Rhodesia, and the former High Commission territories.

6292. History of Modern China, 1800 to the Present. (3).

6294. History of Modern Japan, 1800 to the Present. (3).

6295. Intellectual History of East Asia since 1800. (3). Evolution of modern Chinese and Japanese thought.

6320. Ancient Near East. (3). From the beginnings in Egypt and Mesopotamia to great 'oriental empires' (Assyria, Babylon, Persia).

6321. The Greek Experience. (3). Politics, society, and culture in ancient Greece to Alexander the Great.

6322. The Roman World. (3). Hellenistic kingdoms and Roman Empire.

6361. History of the Byzantine Empire. (3). Byzantine or East Roman Empire from 330 to 1453 and its influence on the Slavic, Turkic, and Islamic peoples.

6371. Early Middle Ages. (3). Late Roman Empire, the migration period, the emergence of Islamic, Byzantine, and West European cultures through the period of the Investiture Controversy.

6372. High Middle Ages. (3). Urban emergence, the growth of feudal monarchy, the foundations of modern political institutions, the medieval universities, and the intellectual fabric of scholasticism.

6380. Renaissance Europe, 1300-1520. (3). Transition from medieval to early modern institutions in Europe with emphasis on urban growth, capitalism, emergent nationalism, international diplomacy, and humanism.

6390. Europe in the Age of the Reformation. (3). Characteristic political, social, economic, intellectual,

and cultural developments and the religious conflicts of the late fifteenth and sixteenth centuries.

6401. Europe in the Age of the Baroque. (3). Political crises, the development of monarchical absolutism, the rise of modern science, and the cultural synthesis in the seventeenth century.

6440. Era of the French Revolution. (3). Old Regime, origins and development of Enlightenment thought, and revolutionary and counter-revolutionary movements in 18th century Europe.

6453. Europe, 1815-1914. (3). Note: Students who have received credit for HIST 6451 or 6452 will not be allowed credit for HIST 6453.

6461. Europe, 1914-1945. (3).

6503. Disease, Medicine, and History. (3). How various diseases and the medical attempts to conquer them have influenced economic, political, and social action throughout history. Particular emphasis on significant work in the history of public health and on speculation about the importance of environmental factors in man's future.

6620. Colonial America to 1783. (3). Political development and economic, social and cultural institutions of English colonies in America, including origins and conduct of American Revolution.

6630. The New Nation, 1783-1815. (3). Note: Students who have received credit for HIST 6641 will not be allowed credit for HIST 6630.

6640. Jacksonian America, 1815-1850. (3). Note: Students who have received credit for HIST 6642 will not be allowed credit for HIST 6640.

6670. Civil War and Reconstruction, 1850-1877. (3). Note: Students who have received credit for HIST 6660 will not be allowed credit for HIST 6670.

6680. Emergence of Modern America, 1877-1914. (3).

6701. The United States, 1914 to the Second World War. (3).

6702. The United States, from the Second World War. (3).

6823. American Labor History. (3). Historical development of the labor movement in the United States. Emphasis on social, economic, and political trends related to the labor movement.

6824. Business History. (3). Historical development of business in the United States. Attention to social, economic, and political trends related to American business communities.

6831. History of American Family. (3). Analysis of changes in family size and structure and relationships between family and society from colonial times to present.

6851. History of Women in America. (3). Economic, political, social, and intellectual history of women in the English American colonies and the United States.

6861. Parks/People/Public Policy. (3). A comparative study of the history and administration of public land areas in the United States and of American conservation.

6863. History of Childhood in America. (3). Historical consideration of children and childhood in American society from early 17th century to present.

6871. United States Urban History. (3). Development of American cities, including formation of local social, economic, and political institutions and impact of urbanization on U.S.

6881. Black American History. (3). Role of Blacks in America from Jamestown to the present.

6941. History of the American Indian. (3). Role of the Indian in American History.

7000-8000. Introduction to Historical Research and Writing. (3). Mechanical techniques of historical composition, the nature and use of various kinds of historical source materials, bibliographical aids, and methods of historical synthesis. Required of all history majors.

7010-8010. Topics in History. (3).

7011-8011. Philosophy of History. (3). Speculative philosophy of history and recent problems in analytical philosophy of history.

7012-8012. Directed Readings. (1-3). Arranged on an individual basis. Master's candidates may take the course for 3 hours credit. May be repeated for a total

of 6 hours credit by students admitted to doctoral program.

7020-8020. Seminar for Teaching Assistants. (1). Overview and practical demonstrations of art of teaching history. Required of all graduate assistants.

7070-8070. Research Seminar. (1-3). Emphasis on original research and writing in topics drawn from the fields generally covered by the Studies courses. May be repeated for credit with departmental approval. **PREREQUISITE:** HIST 7000.

The following Studies courses consist of readings and reports to survey the important literature on the period.

7122-8122. Studies in Stuart England (3).

7123-8123. Studies in English History, 1714-1867. (3).

7124-8124. Studies in English History since 1867. (3)

7280-8280. Africa. (3). May be repeated when topic varies.

7320-8320. Ancient History. (3). May be repeated when topic varies.

7370-8370. Studies in Middle Ages. (3).

7380-8380. Studies in Renaissance. (3).

7430-8430. Studies in 18th-Century Europe. (3).

7450-8450. Studies in 19th-Century Europe. (3).

7460-8460. Studies in 20th-Century Europe. (3).

7510-8510. Studies in Russian History. (3).

7640-8640. Studies in U.S. History, 1790-1840. (3).

7680-8680. Studies in U.S. History, 1877-1917. (3).

7700-8700. Studies in U.S. History, 1917-1950. (3).

7710-8710. Studies in U.S. History, 1950-Present. (3).

7920-8920. Studies in Southern History. (3).

7940-8940. Studies in History of the West. (3).

7980-8980. Special Topics in American History. (3). May be repeated when topic varies.

7950-8950. Studies in U.S. Diplomatic History. (3).

7960-8960. Studies in State and Local History. (3).

†7996. Thesis. (1-6). The student must write and defend satisfactorily a thesis on a subject approved by his major professor.

†9000. Doctoral Dissertation. (1-12). No more than 12 hours may be applied toward degree. **PREREQUISITE:** Admission to candidacy.

†Grades of S, U, or IP will be given.

MATHEMATICAL SCIENCES

RALPH J. FAUDREE, Ph.D., *Chair*
Room 373 Winfield Dunn Building

R. H. SCHELP, Ph.D., *Coordinator of*
Graduate Studies

I. The Department of Mathematical Sciences offers graduate programs leading to the Master of Science and Doctor of Philosophy degrees with a major in Mathematics.

The areas of concentration for the M.S. degree are Applied Mathematics, Computer Science, Mathematics, and Statistics. Within the M.S. degree, students may complete up to twelve semester hours in a collateral area approved by their adviser.

A special Interdisciplinary M.S. degree is also available.

The areas of concentration for the Doctor of Philosophy degree are Applied Statistics, Computer Science, and Mathematics.

II. M.S. Degree Program

Program Prerequisites

A. A score of at least 30 on the MAT or 800 on the GRE (verbal plus quantitative)

B. Two letters of recommendation

C. A minimum score of 550 on the TOEFL (for foreign students whose native language is not English)

D. An undergraduate degree with a minimum GPA of 2.5 on a 4.0 scale

Program Requirements

A. At least 24 semester hours at the 7000 level

B. A passing grade on a written comprehensive examination

Each of the concentration areas has additional program prerequisites and requirements which are given below.

Mathematics Concentration

A. Prerequisite

An undergraduate degree with a major in mathematics or equivalent training.

B. Requirements

1. Satisfactory completion of 33 semester hours of graduate course work in a program approved by the department.

2. Satisfactory completion of at least 21 semester hours of graduate course work in mathematics (A typical program will include at least two of the following two-

course sequences: MATH 7350-7351, 7261-7262, 7411-7361).

Computer Science Concentration

A. Prerequisites

1. One year (8 semester hours) of calculus and one semester (3 semester hours) of linear algebra (A student without the calculus and/or linear algebra prerequisites can be admitted on a provisional basis.)

2. Satisfactory completion of any one of the following sequences:

a. COMP 1900, 2150, 3160, 3230, 3420, 4040, 4030; MATH 2701

b. COMP 3160, 6002, 6003, 6040, 6030; MATH 6701

c. Courses equivalent to those listed in a or b above (None of the courses above may be used to fulfill degree requirements.)

B. Requirements

1. Satisfactory completion of 34 semester hours of graduate course work approved by the department

2. Satisfactory completion of a minimum of 22 semester hours of computer science course work approved by the department including one or more courses from each of the following areas:

a. Software: COMP 7041, 7111, 7270

b. Theory: COMP 7120, 7601, 7715, 7718; MATH 7235, 7713

c. Applications: COMP 7115, 7116, 7720, 7820, 7825; MATH 7721

Statistics Concentration

A. Prerequisites

Three semesters of calculus and one semester of linear algebra

B. Requirements

1. Satisfactory completion of 30 semester hours of graduate course work with a thesis or 33 semester hours of graduate course work without a thesis in a program approved by the department.

2. Satisfactory completion of at least 21 semester hours of graduate course work in statistics, including:

a. MATH 6613 and 7654

b. At least three of the following: MATH 6612, 7641, 7643, 7670

Applied Mathematics Concentration

A. Prerequisites

Undergraduate preparation which includes work in ordinary and partial differential equations, linear algebra, advanced calculus and numerical analysis (Students lacking this background may be admitted provisionally and be required to take one or more of the following courses: MATH 6391, 6242, 6350, 6721.)

B. Requirements

Satisfactory completion of at least 33 semester hours of graduate course work in a program approved by the department which includes MATH 7321, 7721, and 7995

III. Interdisciplinary M.S. Degree Program

Program Requirements

Satisfactory completion of at least 33 semester hours of graduate course work, with a minimum of 21 semester hours in mathematical sciences courses (with the advisor's approval, the student may elect up to 12 semester hours in a collateral area, e.g. Biology, Business, Education, Engineering, Philosophy, Psychology, etc.). A candidate whose collateral area is secondary education may choose mathematics courses from those listed below under the heading "Mathematics Courses for Secondary School Teachers."

IV. Ph.D. Degree Programs

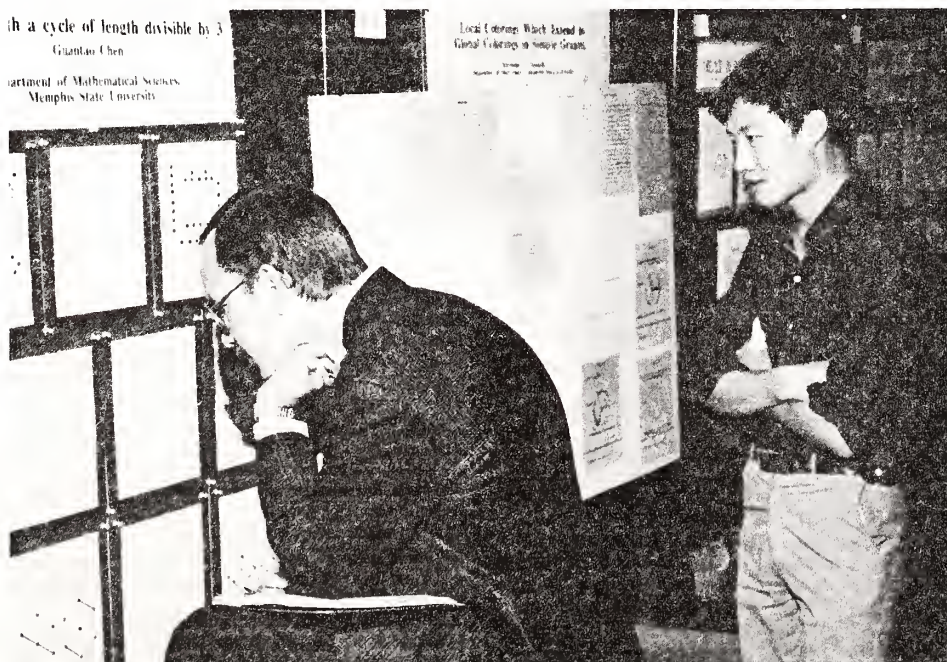
Program Prerequisites

A. A minimum score of 1000 on the GRE (verbal plus quantitative)

B. Three letters of recommendation

C. A score of at least 550 on the TOEFL (for foreign students whose native language is not English)

D. An undergraduate degree in an appropriate discipline with a minimum GPA of 2.5 (on a 4.0 scale) or equivalent preparation



Program Requirements

- A. A passing grade on a qualifying examination prior to the end of the first 13 months of study in the program
- B. At least two consecutive semesters of residence as a full-time student
- C. At least 42 semester hours in 7000 or 8000 level courses, with a minimum of 18 semester hours at the 8000 level
- D. A passing grade on a comprehensive examination
- E. Completion of an acceptable dissertation
- F. A passing grade on a final examination given by a committee composed of departmental and university representatives
- G. Each student must obtain approval of a program of study prior to the end of the first full year of study in the program
- H. Satisfactory completion of concentration requirements which include:

Mathematics Concentration

Demonstration of reading proficiency in one foreign language - either French, German, or Russian

Applied Statistics Concentration

1. A minimum of eight courses in statistics and three courses from a minor area, all at the 7000 level or above; a minimum of two courses in each of computer science and mathematics (pure or applied) and one 7000 level course in mathematical sciences outside of statistics
2. Presentation of an acceptable dissertation proposal within six months after passing the comprehensive examination

Computer Science Concentration

1. Satisfactory completion of courses from at least two substantially different areas of computer science. In each area the student must complete a sequence of at least three courses.
2. Presentation of an acceptable dissertation proposal after passing the comprehensive examination

The Ph.D. concentration in mathematics is designed so that students may pursue a traditional degree or may choose a more broadly based program aimed toward a college teaching career. Students may contact the department for more detailed information.

E285 COMPUTER SCIENCES (COMP)

6001. Computer Programming. (3) (MATH 6710). Algorithmic, problem solving, formalization of algorithms, stepwise refinement; the BASIC and FORTRAN programming languages: constants, variables, data types, arithmetic expressions, assignment statements, logical expressions, branching, iteration, subprograms and parameters, I/O, string manipulation, programming style. NOTE: Computer Science majors may not use COMP 6001 to fulfill degree requirements. PREREQUISITE: MATH 1211.

6002. Accelerated Computer Programming. (3). Principles of computer programming style, expression, and documentation: design specifications, algorithmic problem-solving, stepwise refinement, storage variables and structures, assignments, primitive operations, and branching; coding in a high-level programming language: data typing, standard procedures and functions, subprograms and parameters, control structures, and I/O, program structures, correctness, verification, testing, modification, maintenance. NOTE: Computer Science majors may not use COMP 6002 to fulfill degree requirements. NOTE: Credit for either COMP 1900 or 2150 precludes credit for COMP 6002. PREREQUISITE: MATH 1321. COREQUISITE: COMP 6701.

6003. Computer Organization and Assembly Language Programming. (3). Binary signals, combinatorial and sequential logic networks; computer structure, memory, control, processing, and I/O units; instruction types and execution. Computer machine language: symbolic coding and assembly systems: design, coding, testing, tracing, and debugging. NOTE: Computer Science majors may not use COMP 6003 to fulfill degree requirements. NOTE: Credit for either COMP 3230 or COMP 3420 precludes credit for COMP 6003. PREREQUISITE: COMP 2150 or 6002.

6030. Introduction to Algorithms. (3). Abstract data types; asymptotic behavior of programs; basic paradigms in algorithm design: greedy, divide-and-conquer,

dynamic programming, and graph traversal; string matching; garbage collection and compaction. PREREQUISITE: COMP 2150 or COMP 6002.

6040. Programming Languages. (3). (MATH 6769). Comparative features, syntax, and applicability of high-level programming languages such as FORTRAN, COBOL, PASCAL, SNOBOL, ILISP, ADA, C, and FORTH data types and data structures and dataflow, procedures, recursion, runtime environment, string manipulation, list processing, array processing, documentation, programming style. PREREQUISITE: COMP 2150 or 6002.

6041. Introduction to Compilers. (3). Finite state recognizers, lexical scanners, symbol tables, context-free methods such as recursive descent, LL(K), precedence, LR(K), SLR(K); language translation, generation and improvement of machine independent codes, inherited and synthesized attributes syntax-directed translation schema. PREREQUISITES: COMP 6003, 6040 and 6030.

6081. Software Development. (3-6). Program design methodologies: formal methods, dataflow diagrams, strength and coupling measures; programmer teams, organization and management, scheduling and estimating, walk-throughs, program libraries and documentation; organization, management and development of large-scale software project. Repeatable, with permission, to 6 semester hours. PREREQUISITES: COMP 6040 and 6030.

6242. Introduction to Computer Graphics. (3). Characteristics of graphics I/O devices; 2D pictures, scaling, translation, rotation, windowing; drawing histograms, simple maps, block diagrams and flowcharts; curved lines, precision, quantization, interpolation, plotting equations; 3D pictures, scaling, translation, rotation, projections, hidden line problem, non-Euclidean geometry, animation. PREREQUISITE: COMP 3420 or 6003.

6270. Introduction to Operating Systems. (3). Hierarchy of storage devices, I/O buffering, interrupts, channels; multi-programming, processor and job scheduling, memory management: paging, segmentation, virtual memory; management of asynchronous processes: interrupt procedure calls, process stateword and automatic switch instructions, semaphores, concurrency; security and recovery procedures. PREREQUISITES: COMP 6003, 6040, and 6030.

6601. Introduction to Computability. (3). Models of sequential computation; normal forms; Chomsky hierarchy; effective procedures and Church's thesis; reducibilities; sample of recursively unsolvable algorithmic problems; efficient computation; models of parallel computation. PREREQUISITE: MATH 6701 or permission of instructor.

6711. Introduction to Mathematical Logic. (3). Propositional Logic and truth tables algorithms; first order calculus: terms, formulas, sentences, models, satisfaction, truth and logical validity; proof procedures and natural deduction, completeness and incompleteness theorems; applications to artificial intelligence, computer theorem proving, and verification of computer programs. PREREQUISITE: MATH 2701, 6701, or PHIL 3621.

6720. Introduction to Artificial Intelligence Programming. (3). Fundamentals of programming in LISP. Central ideas of artificial intelligence, including matching, goal reduction, constraint exploitation, search, and problem solving. PREREQUISITE: COMP 4040 or permission of instructor.

6730. Expert Systems Programming. (3). Fundamentals of programming in PROLOG, including data structures, backtracking, the cut, i/o, predicates, and debugging; central ideas of expert system development including knowledge representation, control structures, tools, and knowledge acquisition. PREREQUISITES: MATH 2701 and COMP 6030 or permission of the instructor.

6901. Individual Studies in Computer Science. (1-3). (MATH 6791). Directed individual study of selected areas of computer science. Repeatable by permission to 6 semester hours. PREREQUISITE: Permission of instructor.

6990-6999. Topics in Computer Science. (1-3). Topics are varied and announced in *Schedule of Classes*. PREREQUISITE: Permission of instructor.

7041-8041. Compiler Design. (3). (MATH 7760). Translation of computer source language including compiling of interpreters, scanning and code genera-

tion, for arithmetic and Boolean expressions, arrays, conditional and iterative statements using recursive and non-recursive compiling techniques. Construction of automated compiler given a source language in form of a context-free grammar and a target in the form of actions to be performed when rules of grammar are satisfied. PREREQUISITE: COMP 6041.

7111. Microcomputer Programming I. (3). (MATH 7793003). Machine language and assembly language of selected microcomputer; characteristics of operating systems including standard maintenance and programming utilities; additional topics selected from hardware background, input-output interfacing, interrupt processing, software development. PREREQUISITE: COMP 6003 and 6030 or permission of instructor.

7112. Microcomputer Programming II. (3). (MATH 7793002). Additional selected topics in microcomputer programming; usually includes comparative study of a second microcomputer or operating system. PREREQUISITE: COMP 7111.

7115. Database Systems. (3). Hierarchical, network and relational database models are examined with respect to physical data organization, query languages, query optimization and security with emphasis on actual systems. PREREQUISITE: COMP 3160 and 6030

7116-8116. Advanced Database Systems. (3). Design techniques for physical database design; indexing, hashing; methods that provide a formal basis for designing logical database relational model; entities and relationships, role or generalization, and aggregation; distributed data systems. PREREQUISITE: COMP 7115 or instructor's permission.

7120. Cryptography and Data Security. (3). Cipher systems, transposition and substitution ciphers, monoalphabetic and polyalphabetic substitution, s-p networks, DES; public key systems, knapsack-based systems, RSA; computational aspects of encryption and cryptanalysis; cryptographic techniques, block and stream ciphers, asynchronous and self synchronous ciphers; one-way ciphers; cryptographic protocols. PREREQUISITE: permission of instructor; MATH 6701 recommended.

7270. Operating Systems. (3). (COMP 7271). Function, structure, and design parameters of computer operating systems. Time-sharing, multiprogramming, and multiprocessing considerations. Actual operating systems. Design methodology and evaluation techniques. PREREQUISITE: COMP 6270.

7272-8272. Parallel Processing. (3). Overview of parallel computer, including parallel architectures, parallel algorithms, parallel languages, parallel programming strategies, massively parallel computing, and case studies; programming projects assigned on parallel computer. PREREQUISITES: Knowledge of FORTRAN, C, or LISP and permission of instructor.

7310. Data Communications I. (3). Network structure and architecture; network topology; ISO Reference Model: physical layer, and datalink layer. PREREQUISITES: COMP 3420 or COMP 6003 or permission of instructor.

7311. Data Communications II. (3). Network Layer; Transport and Session Layers; Presentation Layer; Application Layer. PREREQUISITE: COMP 7310 or permission of instructor.

7514-8514. Cognitive Science Seminar. (3). Systematic study of current topics in Cognitive Science; student required to make presentations and prepare research paper or project. May be repeated for a maximum of 9 hours credit. No more than 3 hours may be applied to M.S. with computer science concentration. PREREQUISITE: Permission of instructor.

7515-8515. Complex Systems Seminar. (3). Systematic study of current topics in complex systems, including dynamical systems, chaos, fractals, cellular automata, and neural networks; class presentations and research paper or project required. May be repeated for maximum of 9 hours credit; no more than 3 hours may be applied to M.S. with concentration in computer science. PREREQUISITE: Permission of instructor.

7601. Advanced Topics in Automata Theory. (3). Fine-grained models of parallel computation and discrete dynamical systems; linear cellular automata; injectivity and surjectivity of global dynamics; Moore-Myller theorem; applications to pattern recognition and image processing and applications to discrete modeling in Physics and Chemistry; current models of connection machines in operation and their programming.

PREREQUISITE: COMP 6601 or permission of instructor.

7713. Design and Analysis of Algorithms. (3). Sequential and parallel RAM time and space and algorithmic complexity measures, basic concepts and techniques of algorithmic analysis; complexity classes; major algorithmic design paradigms, including greedy methods, divide-and-conquer, dynamic programming, back-tracking, branch-and-bound, and parallel processing; upper and lower bounds; applications to problems in combinatorial optimization. PREREQUISITES: COMP 6002 and COMP 6030.

7715. Computational Complexity. (3). Basic properties of RAM and Turing machine time and space complexity classes; intractable problems and their use in analysis of algorithms; NP-Complete and hard problems; path problems in graphs; approximation algorithms for NP-C; randomization; arithmetic complexity; models and complexity classes of parallel computation; parallel sort and search algorithms. PREREQUISITES: COMP 6601 and 7713 or permission of instructor.

7818-8718. Design and Analysis of Parallel Algorithms. (3). Overview of parallel models, including PRAMS, hypercubes, and cube-connected cycles; upper and lower bounds for sorting and searching; selection; network flow; probabilistic algorithms; efficient parallel algorithms and complexity classes. PREREQUISITES: COMP 7713 (or equivalent) and COMP 6030.

7720. Artificial Intelligence Programming. (3). Predicate calculus, theorem proving, knowledge representation including frames, primitive acts, and summary units, language understanding, image understanding, robotics, learning. PREREQUISITE: COMP 6720 or permission of instructor.

7740-8740. Neural Networks. (3). Background and history, fundamental structures, local and distributed representations, learning algorithms, concept processing, simulations and implementations, computational power, applications. PREREQUISITE: Permission of instructor.

7820. Pictorial Algorithms and Machine Vision (3). Image formation and sensing in vision systems; basic algorithms for processing continuous and discrete images; edge detection; shape detection vs. brightness, lightness, shading and color; reflectance maps; stereoscopic systems; pattern classification; representation problems; basic concepts and applications of computation geometry; passive navigation and motion planning. PREREQUISITE: COMP 7713 or permission of instructor.

7825. Fault Tolerant Computing. (3). (MATH 7793008). Faults, fault models, testability, test generation, test selection, fault dictionaries, triplicated modular redundancy, quadded logic, self-checking computers, design of diagnosable computers, self-healing computers, fail-safe design, fault tolerant computers. PREREQUISITE: Permission of instructor.

7901-8901. Individual Studies in Computer Science. (1-4). Directed independent problem research and program design, writing and documentation in an area selected by student with approval of both adviser and supervising staff members. Repeatable by permission. PREREQUISITE: Permission of instructor.

7912. Computer Center Operations. (3). Major issues, topics and problems of computer center operations. Historical context, planning, systems development methodologies, selection of hardware and software, internal controls, privacy and security, project control, documentation standards and procedures, operational procedures. PREREQUISITE: Permission of instructor.

†7950. Computer Science Seminar. (1). Formal meetings, presentations, and discussion of current topics of interest. Students, faculty, and visiting colleagues participate.

7990-99-8990-99. Advanced Topics in Computer Science. (1-3). Advanced topics and recent developments in computer science. Repeatable by permission. PREREQUISITE: Permission of instructor.

in *Schedule of Classes*. PREREQUISITE: Permission of instructor.

6171. Special Problems in Mathematics. (1-3). Directed individual study in a selected area of mathematics chosen in consultation with the instructor. Repeatable by permission of the Chair of the Department. PREREQUISITE: Permission of the instructor.

6240. Matrix Algebra. (3). Elementary operations, special classes of matrices, determinants, eigenvalues and eigenvectors, canonical forms, and elementary computer implementation. PREREQUISITE: Knowledge of Fortran and MATH 1321 or 1312.

6242. Linear Algebra. (3). Linear transformations, polynomials, determinants, direct-sum decompositions, diagonalizable operators, rational and Jordan form, inner product spaces, spectral theorem. PREREQUISITE: MATH 3242.

6261. Abstract Algebra. (3). Rings; integral domains; fields; groups; divisibility theory; real and complex numbers; polynomials. PREREQUISITE: MATH 2321.

6271. Combinatorics and Graph Theory. (3). Graphs; covering circuits, trees and searching, network algorithm, combinatorics; counting methods, generating functions, recurrence relations, inclusion-exclusion. PREREQUISITES: MATH 2322 and 2701.

6350. Advanced Calculus. (3). The real number system, functions and sequences, limits, continuity, differentiation; Riemann-Stieltjes integration, series of functions. PREREQUISITE: MATH 2322.

6351. Advanced Calculus. (3). Integration theory; Riemann and Lebesgue integrals; partial differentiation; implicit function theorem. PREREQUISITE: MATH 6350 or permission of instructor.

6361. Complex Variables. (3). Complex numbers, point sets and mappings; analytic functions; integration. PREREQUISITE: MATH 2322.

6381. Modern Applied Mathematics I. (3). Symmetric linear systems, constraints and Lagrange multipliers, least squares and Kalman filter, discrete and continuous equilibrium problems, variational methods, and introduction to finite element methods. PREREQUISITE: MATH 3391 and either 4240 or 3242 or permission of instructor.

6382. Modern Applied Mathematics II. (3). Continuation of MATH 6381. Analytic functions, conformal mappings, Fast Fourier transform, initial value problems, combinatorial methods and network flows, modern methods of optimization. PREREQUISITE: MATH 6381.

6390. Ordinary Differential Equations. (3). Existence and uniqueness, linear and nonlinear systems, stability, classification of linear flows, boundary value problems, and numerical applications. PREREQUISITES: MATH 3391 and either 4240 or 3242.

6391. Partial Differential Equations I. (3). Laplace transforms; Fourier series; introduction to partial differential equations. PREREQUISITE: MATH 3391.

6392. Partial Differential Equations II. (3). Methods of characteristics; Greens functions; existence and regularity of solutions of boundary value and Cauchy problems. PREREQUISITE: MATH 6391.

6411. Topology. (3). Introductory set theory; metric spaces; topological spaces; mappings; Hausdorff spaces; connectedness and compactness. PREREQUISITE: MATH 4350.

6701. Mathematics for Computer Scientists. (4). Basic mathematical concepts applied to problem solving in computer science; (di)graphs, trees; enumeration; recurrence relations; induction, basic probability and distributions; integer and modular arithmetic; random number generators; state sets and transition functions, finite-state machines; boolean algebra, and elementary logic. PREREQUISITE: MATH 1211. COREQUISITE: MATH 1321.

6721. Numerical Analysis. (3). Derivation and application of computer-oriented numerical methods for functional approximation, differentiation, quadrature, and the solution of ordinary differential equations. PREREQUISITES: MATH 2321 and knowledge of Fortran.

6741. Linear Programming Methods. (3). Theory of linear programming methods; problem formulation; convex sets; simplex and revised simplex methods; matrix games and linear programming. PREREQUISITES: MATH 3242 and COMP 1900 or their equivalents.

7235. Combinatorics. (3). (MATH 7793007). Principles and techniques of combinatorial mathematics with a view toward applications in computer science. Methods of enumeration, matching theory, paths and cycles, planarity, coloring problems, extremal problems. PREREQUISITE: Permission of instructor.

7236. Applied Graph Theory. (3). Applications of directed and undirected graphs to problems in various disciplines: chemistry, computer science, electrical engineering, linguistics, operations research, social sciences. PREREQUISITE: MATH 6242 or permission of instructor.

7241. Linear Algebra. (3). Vector Spaces; linear transformations and functionals; determinants; rational and Jordan forms; inner product spaces; bilinear forms; PREREQUISITE: MATH 6242.

7261. Algebraic Theory I. (3). Studies in group theory and ring theory, including Sylow theory and factorization theory. PREREQUISITE: MATH 6261.

7262. Algebraic Theory II. (3). A continuation of Math 7261. Studies in field theory and modules, including free algebras, Galois theory, tensor products. PREREQUISITE: MATH 7261.

7290-99-8290-99. Topics in Algebra. (3). Topics are varied and announced in *Schedule of Classes*. PREREQUISITE: Permission of instructor.

7311-8311. Topics in Analysis. (1-3). Repeatable by permission. PREREQUISITE MATH 7350.

7321. Modeling and Computation. (3). Introduction to process of formulating, solving, and interpreting mathematical models of real phenomena; both formal analysis and numerical techniques for variety of models. PREREQUISITE: MATH 3391, 6721.

7350. Real Variables. (3). σ -algebra, outer measure, Lebesgue measure, measurable functions, differentiation, absolute continuity, L_p -spaces. PREREQUISITE: MATH 6351.

7351. Real Variables II. (3). Metric spaces, Baire category theorem, Hahn Banach theorem, uniform boundedness principle, closed graph theorem, general measure, signed measures, Radon-Nikodym theorem, product measures, Fubini theorem. PREREQUISITE: MATH 7350.

7355-8355. Functional Analysis I. (3). Vector spaces, Banach spaces, Hilbert spaces; linear functionals and operators in such spaces; spectral theory. PREREQUISITE: MATH 7350.

7356-8356. Functional Analysis II. (3). A continuation of MATH 7355-8355. PREREQUISITE: MATH 7355-8355.

7361. Complex Analysis. (3). Analytic functions, power series, mapping properties, complex integration, Cauchy's theorem and its consequences, sequences of analytic functions. PREREQUISITE: MATH 6351.

7371. Calculus of Variations. (3). Introduction to calculus of variations, including applications to problems in science, engineering, and economics. PREREQUISITE: Permission of instructor.

7375. Methods of Mathematical Physics I. (3). Vector spaces, matrices, tensors, vector fields, function spaces, differential and integral operators, transform theory, partial differential equations. PREREQUISITE: MATH 3391, 4242 and 4350 or permission of instructor.

7376. Methods of Mathematical Physics II. (3). Complex variables, asymptotic expansions, special functions, calculus of variations, additional topics on matrices and operators, topics in non-linear analysis. PREREQUISITE: MATH 7375 or permission of the instructor.

7391-8391. Optimization Techniques. (3). Calculus of variations, gradient methods, Pontryagin maximum principle. PREREQUISITE: MATH 6391.

7393-8393. Differential Equations and Applications. (3). The concepts of stability and periodic oscillation are examined for systems that arise in harmonic oscillation, population dynamics, circuit theory, mechanics, ecology, epidemics and other areas that depend on the interests of the class. PREREQUISITE: MATH 3391 or consent of instructor.

7395-8395. Theory of Differential Equations. (3). Linear and nonlinear systems, Poincaré-Bendixson theory, Liapunov's direct method, fundamental properties of solutions including existence and uniqueness, and applications. PREREQUISITE: MATH 6350 and 6242.

† Grades of S, U, or IP will be given.

E280 MATHEMATICS (MATH)

6010-19. Special Topics In Mathematics and Statistics. (1-3). Topics are varied and announced

7411. Point Set Topology. (3). An axiomatic approach to compactness, separability, connectedness, metrizable and other topological properties. PREREQUISITE: MATH 6411.

7412-8412. Topics in Topology. (3). PREREQUISITE: MATH 7411.

7713. Discrete System Theory. (3). Discrete-time dynamical systems; state variable description and classification; controllability and observability; linearity and time-invariance. Theory of autonomous systems. PREREQUISITES: MATH 4242 or equivalent and MATH 3391.

7721. Advanced Numerical Analysis. (3). A continuation of Mathematics 6721; specialized methods and techniques in field of numerical analysis. PREREQUISITE: MATH 6721.

7821-8821. Special Problems in Mathematics. (1-3). Directed individual study in a selected area of mathematics chosen in consultation with the instructor and the student's adviser. Repeatable by permission. PREREQUISITE: Permission of the instructor.

7921-8921. Special Problems in Differential Equation. (1-3). Repeatable by permission. PREREQUISITE: MATH 7393.

7922-8922. Special Problems in Applied Mathematics. (1-3). Repeatable by permission. PREREQUISITE: Permission of the instructor.

7995. Project in Applied Mathematics. (1-3). Mathematical modeling problem related to science or industry, selected in consultation with a faculty advisor, and leading to final report. Repeatable by permission. PREREQUISITE: MATH 7321.

†7996. Thesis. (3-6).

8011. Practicum in College Teaching of Mathematics. (Variable and Repetitive Credit). The methods and techniques of teaching mathematics at the college level; supervised instruction conferences, group discussions, students will participate in current research projects in mathematics methodology. PREREQUISITE: Permission of the instructor.

8811. Advanced Seminar in Mathematics. (1-3). PREREQUISITE: permission.

†9000. Dissertation. (1-5). Independent research for the Ph.D. degree. Application for writing a dissertation must be filled out on an approved form after consultation with the Doctoral Advisors and Committee and filed with the Dean of Graduate Studies.

MATHEMATICS COURSES FOR SECONDARY SCHOOL TEACHERS (MATH)

6151. History of Mathematics. (3). The development of mathematics from the earliest times to the present; problem studies; parallel reading and class reports. PREREQUISITE: MATH 2321 or its equivalent.

7171. Workshop in Junior High Mathematics. (3). This course is designed to provide in-service training, with emphasis on new course content.

7174. Workshop in Senior High Mathematics. (3). This course is designed to provide in-service training, with emphasis on transformation geometry.

7281. Linear Algebra for Teachers. (3). Euclidean n -space; vector spaces; subspaces; linear independence and bases; linear transformations; matrices; systems of linear conditions; characteristic values and vectors of linear transformations. PREREQUISITE: MATH 7381.

7282. Abstract Algebra for Teachers. (3). A basic abstract algebra course designed especially for teachers. Topics will include; groups, rings, integral domains, fields; an axiomatic approach to the development of algebra; concepts of proof. PREREQUISITE: College Algebra.

7381. Introduction to Analysis I. (3). Properties of real number system; elementary functions; plane analytic geometry; nature of the derivative; techniques of differentiation; periodic functions; differentiation of trigonometric functions; applications of the derivative; concepts of integration. PREREQUISITE: MATH 1211 or MATH 1213.

7382. Introduction to Analysis II. (3). Continuation of MATH 7381; definite integral with applications; integration of elementary transcendental functions; techniques of integration; indeterminate forms and improper integrals; infinite sequences and infinite series

with tests for convergence. PREREQUISITE: MATH 7381 or equivalent.

7681. Probability for Secondary Teachers. (3). Probability spaces, theory of statistical inference, physical interpretations of probability. PREREQUISITE: MATH 1211.

STATISTICS (MATH)

6610. Biostatistics. (3). Discrete and continuous probability distributions; one sample and two sample problems; analysis of categorical data hypothesis testing; estimation; nonparametric analysis; linear regression; analysis of variance; and biostatistical applications; examples from biomedical sciences. PREREQUISITE: 3 hours in mathematics at the level of MATH 1211 or above. Credit may not be obtained for MATH 4611 and this course.

6611. Statistical Methods I. (3). Binomial, hypergeometric, Poisson, multinomial and normal distributions; test of hypotheses, chi-square test, t -tests, F -test, etc.; non parametric tests; correlation analysis. PREREQUISITE: 6 hours in Mathematics at the level of MATH 1211 or above.

6612. Statistical Methods II. (3). Continuation of Statistics 6611. An introduction to analysis of variance, regression, and analysis of covariance. PREREQUISITE: MATH 6610 or 6611.

6613. Introduction to Statistical Theory. (3). Sample distributions, transformations of random variables, central limit theorem, law of large numbers, unbiasedness, least squares estimations, maximum likelihood estimations, confidence intervals, most powerful tests, Neyman-Pearson lemma, likelihood ratio tests. PREREQUISITE: MATH 4635 or MATH 6635.

6614. Applied Probability and Queueing Theory. (3). Probability and random variables, discrete and continuous probability distributions, stochastic processes, queueing theory, applications of probability and queueing theory to computer systems. NOTE: Students may not receive credit for both MATH 6614 and MATH 6635. PREREQUISITES: MATH 2321, MATH 2701, and COMP 1900.

6631. Probability. (3). Basic concepts in probability; probability models; applications. NOTE: Students majoring in Mathematical Sciences may not take MATH 6631 for credit.

6635. Introduction to Probability Theory. (3). Basic probability theory, random variables, discrete and continuous probability distributions, functions of one or more random variables, multivariate distributions including multinomial and bivariate normal distributions. NOTE: Students may not receive credit for both MATH 6635 and MATH 6614. PREREQUISITE: MATH 2322.

7613. Probability Theory. (3). Probability measures; distribution functions; independence; mathematical expectation; modes of convergence. Borel-Cantelli Lemma, Weak and Strong Laws of Large Numbers; Glivenko-Cantelli Lemma. Characteristic Functions, Inversion Theorems; Slutsky's Theorem. Central Limit Theorem: Liapounov and Lindberg-Levy and Lindberg-Feller Theorems; Multivariate Extensions. Berry-Esseen Theorem. PREREQUISITES: MATH 6350. Knowledge of MATH 6613 recommended.

7641. Analysis of Variance. (3). Basic principles and mathematical models, fixed effects models, F -test and multiple comparison procedures, random effects models, testing, estimation and approximate confidence intervals of variance components, mixed effects models, randomization models, robustness of F -test, analysis of covariance. PREREQUISITE: MATH 6611 or 6613.

7642-8642. Experimental Design. (3). Fundamental concepts in designing experiments, justification of linear models, randomization, principle of blocking, use of concomitant observations, principle of confounding, fractional replication, composite designs, incomplete block designs. PREREQUISITE: MATH 7641 or 7643.

7643. Least Squares and Regression Analysis. (3). Simple, multiple regression analysis, best model selection, Mallows' C_p , examination of residuals, Box-Cox Transformation, influence diagnostics, multicollinearity, non-linear regression, computer statistical packages. PREREQUISITE: MATH 6611 or 6613.

7645. Sampling Techniques. (3). Planning, execution, and analysis of sampling from the finite populations; simple, stratified, multistage cluster and systematic sampling; ratio and regression estimates, estimation of variance. CEREQUISITE: MATH 6611 or 6613.

7647. Nonparametric Statistical Methods. (3). Use of distribution-free statistics for estimation, hypothesis

testing, and correlation measures in designing and analyzing experiments. PREREQUISITE: MATH 6611 or MATH 6613.

7651-8651. Theory of Linear Models. (3). Quadratic forms, point and interval estimation, multivariate normal distribution; linear models, general linear hypothesis of full rank computing techniques; functional relationships. PREREQUISITE: MATH 6611, 6613, and 7654.

7654. Inference Theory. (3). Bayes and maximum likelihood estimators; sufficient statistics; Rao-Blackwell Theorem; sampling distributions; unbiasedness, completeness and UMVU estimators; efficient estimators, Cramer-Rao inequality; simple Robust estimators; UMP-tests; likelihood ratio tests, t -tests and F -tests. PREREQUISITE: MATH 6613.

7656-8656. Advanced Techniques in Statistical Inference. (3). Limit theorems; uniformly minimum variance unbiased and maximum likelihood estimators; information inequalities; large sample theory; Robust estimators; uniformly most powerful unbiased and invariant tests; sequential and Robust tests. PREREQUISITE: MATH 7654.

7657-8657. Multivariate Statistical Methods. (3). Basic contents: Multivariate normal distributions; Wishart distribution, Hotelling- T^2 , Matric- t and Beta distributions; generalized regression models and growth curve models; multivariate analysis of variance; principal component analysis; discriminant analysis; factor analysis; curve fitting procedures in multivariate cases. All topics will be illustrated by practical examples. PREREQUISITE: MATH 6613 or permission of the instructor.

7660-8660. Applied Time Series Analysis. (3). Basic concepts and examples of stationary and non-stationary time series. Random harmonic analysis. Spectral density functions, model building procedures for time series models. Model identification. Diagnostic checking, smooth, forecasting and control. Box-Jenkin approach of time series analysis. Some seasonal models. PREREQUISITE: MATH 6613.

7670-8670. Applied Stochastic Models. (3). Markov chains with discrete time. Classification of states, stationary distributions, absorption probabilities and absorption time. Markov chains with continuous time. Birth-death processes. Waiting time distributions. Queueing models. Population growth models. Kolmogorov forward and backward equations. Diffusion processes. Fokker-Planck equation. Applications to genetic problems, etc. PREREQUISITE: MATH 6613.

7671-8671. Individual Studies in Statistics. (1-3). Directed individual study of recent developments in statistics. Repeatable by permission. PREREQUISITE: Permission of the instructor.

7672-8672. Special Problems in Statistics. (1-3). (6671). Recent developments in statistical methods and applications. PREREQUISITE: Permission of the instructor.

7680-8680. Bayesian Inference. (3). Nature of Bayesian inference. The formulation and choice of prior distributions. Advantages and disadvantages of Bayesian Approach. The applications of Bayesian approach to Behren-Fisher problems, to regression analysis and to the analysis of random effect models. The applications of Bayesian approach to the assessment of statistical assumptions. Bayesian prediction procedures. PREREQUISITE: MATH 6613.

7685-8685. Statistical Computing. (3). Uniform random number generation and testing, generation of non-uniform random variables, approximating tail probabilities and percentage points in common distributions, computational methods for multiple regression analysis. PREREQUISITE: MATH 6613 and knowledge of FORTRAN.

7691-8691. Seminar in Statistical Research. (1-3). Recent developments in statistical methods and their applications. Basic topics cover "multivariate method," growth curve models, robustness and effects of departure from basic statistical assumptions on common inference procedures, multivariate contingency tables, bioassay, etc. PREREQUISITE: MATH 6613.

7692-8692. Statistical Consulting. (3). Methods and techniques of statistical consulting; students will participate in consulting practica supervised by graduate faculty in statistics. May be repeated for a total of 6 credit hours. PREREQUISITES: MATH 6611 and MATH 6612.

† Grades of S, U, or IP will be given.

PHILOSOPHY

NANCY SIMCO, Ph.D., *Chair*

Room 327, Clement Hall

MARK TIMMONS, Ph.D., *Coordinator of
Graduate Studies*

I. The Department of Philosophy offers graduate programs leading to the Master of Arts and Doctor of Philosophy degrees with a major in Philosophy. The Master's program is designed to provide comprehensive training in philosophy for students seeking work beyond the bachelor's level, whether for self-enrichment, background for other areas, or in preparation for doctoral work. The Ph.D. program provides students with the broad background necessary for effective teaching as well as the specialized research skills required for a career in philosophy at the college or university level.

II. M.A. Degree Program

A. Program Admission

Students desiring admission to the graduate program in philosophy should correspond with the Coordinator of Graduate Studies in Philosophy as early as possible in the admission procedure, and as far in advance as they can before the semester in which they plan to enter.

B. Program Prerequisites

1. A bachelor's degree from a recognized college or university.
2. A minimum of a 2.5 quality point average on a scale of 4.0. Students with less than a 2.5 quality point average may, on occasion, be granted probationary admission.
3. An acceptable score on the general aptitude portion of the Graduate Record Examination or the Miller's Analogy Test.
4. At least 18 semester hours in undergraduate philosophy courses including the following courses or their equivalent: introduction to philosophy, ethics, elementary logic, intermediate logic, history of ancient philosophy and history of modern philosophy. Students who lack one or more of these courses may be admitted to the program only on the condition that they take the appropriate course as soon as possible.
5. Three letters of recommendation from people qualified to judge the student's ability to undertake graduate work. Form letters for this purpose should be obtained from and returned to the Coordinator of Graduate Studies in Philosophy.

C. Program Requirements

1. Thirty to thirty-three hours of class work, 23 of which must be at the 7000 level or above. Students who write a thesis are required to take 30 hours, 3 of which are credit for the thesis. Students who do not write a thesis are required to take 33 hours. Students with approved collateral areas may take up to six hours outside the department if they are writing a thesis or nine hours if they are not.
2. A written comprehensive examination covering the major areas and history of philosophy.

III. Ph.D. Degree Program

A. Program Admission

1. Fulfillment of university requirements for admission to the Graduate School, including a score on the GRE acceptable to the department.
2. The equivalent of the B.A. degree, usually with a major in philosophy. This must include at least the following courses or their equivalents: Intermediate Logic, Survey of Ancient Philosophy, Survey of Modern Philosophy, and Ethics. Students lacking one or more of these courses may be admitted to the program provisionally, on the condition that they make up the missing course work as soon as possible (graduate credit will not be granted for make-up work).
3. Three letters of recommendation, to be submitted by persons competent to judge the prospective student's ability to undertake graduate work. (These letters are to be sent directly from the referee to the department's coordinator of graduate studies).
4. Transcripts of prior academic work. Separate copies should be sent both to the Graduate School and the

department's director of graduate studies. A minimum GPA of 3.00 (on a scale of 4.00) will be expected.

B. Retention Requirements

A student will be retained continuously in the program until completion of the degree providing the following conditions are met:

1. All students will be required to maintain a GPA of at least 3.5. Should the student's GPA fall below that mark, a period of one semester will be allowed to correct the deficiency. At the discretion of the chair and the coordinator of graduate studies, this period may be extended one additional semester.
2. Students will be expected to demonstrate satisfactory progress in fulfilling the graduation requirements outlined below.

C. Graduation Requirements

1. General Requirements

- a. Each student must earn at least 72 credit hours above the Bachelor's degree. No more than 6 hours granted for work on the dissertation may be used to attain the required 72 hours.
- b. At least 60 credit hours must be earned at the 7000 level or higher.

2. Residency Requirements

At least 24 credit hours must be earned while the student is in continuous residence in the program.

3. Distribution Requirements

a. Core Requirements

Students must take a core of twelve hours in major figures in the history of philosophy (at least three in ancient and three in modern); six hours in theoretical philosophy; and six hours in practical philosophy, three of which must be in ethics.

b. Additional Requirements

Students must take the proseminar, normally during the first semester of graduate work; those who have not had an advanced logic course will be expected to take one; at least one course must be a systematic study of a major figure. At least two courses must be in the analytic tradition, and two in the continental tradition; these will normally be courses in the twenty-four hour core.

4. Examination Requirements

a. Qualifying Examinations

Before being admitted to candidacy for the Ph.D. degree, and normally before the end of the fourth semester of graduate study, students must take general qualifying examinations; only those who meet an appropriate standard will be allowed to advance to specialized doctoral-level study.

Note: It is expected that the doctoral qualifying examination will be coordinated with the master's comprehensive examination, so that those whose scores fail to qualify them for advanced doctoral study but are sufficient for the master's degree may then complete the requirements for a terminal master's degree. Students who initially entered the program as master's students only may enter the doctoral program at this time if their scores on the qualifying exams are sufficiently high and they meet all other admission requirements. Reading lists covering the history of philosophy and areas within the discipline will be provided to students preparing for these exams.

b. Area Examinations

Before beginning the dissertation, and normally before the end of the sixth semester of graduate study, students must take examinations in the area in which the dissertation research is to be done. Only those who demonstrate mastery of the area will be allowed to proceed with the dissertation.

5. Language Requirements

Students must demonstrate sufficient ability to translate philosophical texts by sitting for a two-hour translation examination in two of the following languages: French, German, Classical Greek, Latin. Other languages may be substituted if they are shown to be relevant to the student's course of study.

6. Dissertation Requirements

- a. Dissertation Committee. The student must select a dissertation director and a reader from outside the philosophy department. The coordinator of graduate studies in consultation with the graduate faculty will

select two additional readers from within the department.

- b. Dissertation Proposal Defense. The student will submit a proposal for the dissertation to the committee and defend the proposal before the graduate faculty. This defense will normally occur before the end of the sixth semester.

- c. Dissertation Defense. The dissertation committee will schedule a defense of the completed dissertation in coordination with the chair and the coordinator of graduate studies. Notice will be given, copies of the dissertation made available, and a public oral defense of the dissertation will be held. Upon approval of the dissertation committee and barring objections, the dissertation will be submitted to the Graduate School and the degree awarded.

E330 PHILOSOPHY (PHIL)

6211. History of Ancient Philosophy. (3). Selected readings from primary sources, supplemented by commentary from antiquity and modern scholarship, including the Pre-Socratics, Plato, Aristotle, and the Hellenistic period.

6311. History of Modern Philosophy. (3) A critical survey of major philosophers of the 17th and 18th century with special attention to the metaphysical and epistemological issues that divided Rationalism and Empiricism. Readings from Descartes, Spinoza, Leibniz, Locke, Berkeley, Hume and Kant.

6422. Recent Anglo-American Philosophy. (3). An examination of major developments in philosophy in England and the United States from 1900 to present with reading from such philosophers as Russell, Moore, Ayer, Wittgenstein, James, Dewey, Lewis, Quine and other contemporary authors.

6440. Philosophy of the Nineteenth Century. (3). Extensive reading in representative 19th Century philosophers from Fichte to Nietzsche with special attention given to German idealism (especially Hegel) and the reaction against it (left- and right-wing Hegelianism, Marx, Kierkegaard, Nietzsche) as well as utilitarianism, Darwinism, and the rise of positivism.

6441. Recent Continental Philosophy. (3). Major figures in twentieth century European thought; such movements as phenomenology, existentialism, structuralism, critical theory and hermeneutics.

6513. Business and Professional Ethics. (3). Practices and ethics of individuals in business, law, government, social work, and other professions from the standpoint of contemporary ethical theory.

6531. Philosophy of Law. (3). An introduction to theories of legal reasoning and philosophical problems regarding the basic principles of jurisprudence. Designed for pre-law and other students pursuing law related careers. Topics covered include concept of law, legal realism, *stare decisis*, equity jurisprudence, and civil disobedience.

6551. Social and Political Philosophy. (3). An examination of the major philosophical theories of man and the state with emphasis upon the concepts of society, culture, institutions, government, law, power, authority, rights, and obligation. Selected readings.

6552. Marx. (3). Critical study of philosophy of Karl Marx, including the *Manifesto*, *Capital*, as well as related philosophical and historical developments.

6632. Advanced Logic. (3). The nature of axiomatic systems, techniques of formalization, and the logical foundations of mathematics.

6642. Philosophy of Psychology. (3). Philosophical issues in foundations of behavioral sciences, such as free will and determinism; use of mental concepts in behavioral sciences and explanation in behavioral and natural sciences. **PREREQUISITE:** One course in philosophy or psychology or permission of instructor.

6662. Philosophy of the Social Sciences (3). Scientific character peculiar to social (rather than natural) sciences by virtue of their special subject-matter: humans and society; meaning, understanding vs. explanation, rationality and the nature of social institutions.

6800-09. Special Topics in Philosophy. (3). Topics in areas of epistemology, metaphysics, philosophy of language, philosophy of mind, logical theory, axiology. Area to be covered will be in the *Schedule of Classes*. May be repeated for a maximum of 15 hours credit.

7001. Proseminar. (3). Philosophical writing and research methods, and the teaching of philosophy.

7051. Seminar in Systematic Philosophy. (3). An intensive study of one philosophical problem or group of related problems not covered in other graduate seminars. The content of this course in any particular semester will be announced in the class schedule. May be repeated for credit if not to improve grade.

7201. Seminar in Classical Philosophy. (3). An intensive study of a major figure or movement within the ancient or medieval period of Western philosophy. May be repeated for credit if not to improve grade.

7203. Seminar in Contemporary Philosophy. (3). An intensive study of a major figure or movement within contemporary philosophy. May be repeated for credit if not to improve grade.

7241. Seminar on Plato. (3). Passages and topics from selected dialogues.

7252. Seminar on Aristotle. (3). Close reading of central texts from the Aristotelian corpus, such as *Metaphysics* and *Nicomachean Ethics*.

7301. Seminar in Modern Philosophy. (3-6). An intensive study of a major figure or movement within the modern period of Western Philosophy. May be repeated for credit if not to improve grade.

7332. Seminar in the Philosophy of Religion. (3). Historical positions and central issues in the philosophy of religion.

7361. Seminar on Descartes. (3). Descartes' writings and issues raised in these writings.

7372. Seminar on Kant. (3). Emphasis on *The Critique of Pure Reason* and relation between Kant's critical philosophy and his ethics, aesthetics, and philosophy of religion.

7414. Seminar in Metaphysics. (3). Intensive analysis of major figures or issues in contemporary metaphysics.

7421. Seminar in Epistemology. (3). Intensive analysis of major figures or issues in contemporary epistemology.

7442. Seminar on Heidegger. (3). Analysis of central passages from *Being and Time* as well as key essays from middle and later periods; nature of truth, human beings, history, and language.

7451. Seminar on Wittgenstein. (3). Selected texts from the *Tractatus*, *Philosophical Investigations*, and other writings.

7541. Seminar in Social and Political Philosophy. (3). An examination of some of the major speculative and critical philosophies of society and the state with attention to such problems as the philosophical foundations of the social sciences, the nature of political authority, rights, obligations and related problems.

7551. Seminar in Ethical Theory. (3). Intensive analysis of major figures or issues in ethical theory.

7642. Seminar in Philosophy of Logic. (3). Philosophical problems in foundation of logic and non-standard logical systems.

7671. Philosophy of Science. (3). Contemporary problems of analysis of scientific methods.

7761. Seminar in Philosophy of Art. (3). Major theories and problems in the philosophy of art.

7800-7810. Special Topics in Philosophy. (3). Topics vary and are announced in *Schedule of Classes*.

†7994. Reading and Research. (3-6). Individual supervision under a member of the graduate faculty on a topic within the student's major field of interest.

†7996. Thesis. (1-6).

8051. Colloquium on Philosophical Problems. (3). Analysis of particular problem from history of philosophy.

8061. Current Research Topics. (3). Analysis of particular problem in systematic philosophy.

8994. Advanced Reading and Research. (3). Individual supervision under member of graduate faculty on research topic related to student's field of concentration.

9000. Dissertation. (1-6).

†Grades of S, U, or IP will be given.

PHYSICS

DONALD R. FRANCESCHETTI, Ph.D., *Chair*

Room 216 Manning Hall

ROBERT R. MARCHINI, Ph.D., *Coordinator of Graduate Studies*

I. The Department of Physics offers a major in Physics for the Master of Science degree.

II. M.S. Degree Program

A. Program Admission

Students majoring in Physics for the Master of Science degree are required to present as a prerequisite 20 semester hours of undergraduate physics courses including upper division Mechanics, Electricity and Magnetism, and approved Mathematics courses in Calculus and Differential Equations.

B. Program Requirements

1. After meeting the general degree requirements for admission to The Graduate School, students selecting Physics as a major will be assigned to the Graduate Committee, which must approve and direct their course of study.

2. Students may elect either a thesis or non-thesis program.

3. If a *thesis program* is selected the following minimum requirements must be satisfied.

a. 18 semester hours of physics courses numbered 7000 or above, including PHYS 7100, 7200, 7300, and 7520.

b. Sufficient additional courses including 3-6 semester hours in PHYS 7996, Thesis, to satisfy a minimum of 30 semester hours (9 semester hours may be in a collateral field of study).

c. Satisfactory completion of a comprehensive written examination.

4. If a *non-thesis program* is selected the following minimum requirements must be satisfied.

a. 21 semester hours of physics courses numbered 7000 or above, including PHYS 7100, 7200, 7300, and 7520.

b. Sufficient additional courses to satisfy a minimum of 33 semester hours in which 9 may be in a collateral field of study.

c. Completion of a written literature survey of an area of current research in fundamental or applied physics. The subject of this survey must be approved by the Departmental Graduate Committee at least one semester prior to graduation.

d. Satisfactory completion of a comprehensive written examination.

E350 PHYSICS (PHYS)

6000-09. Special Topics in Physics. (3). Selected topics of current interest in physics. Topics are varied and announced in *Schedule of Classes*.

6051. Astrophysics. (3). Application of radiation laws to the interpretation of stellar structure. Introduction to radiative transfer in atmospheres. The spectral and luminosity classification of stars, stellar populations and evolution. *Three lecture hours and occasional observation periods per week.*

6110. Nuclear Physics. (3). Properties of atomic nuclei, radioactive transitions, alpha, beta and gamma decay. Binding energy, nuclear forces and nuclear models.

6211. Optics. (3). Geometrical and physical optics including such topics as thin lenses, spherical mirrors, lens aberrations, optical instruments, waves interference, diffraction, absorption, transmission, and scatterings. *Three lecture, three laboratory hours per week.* PREREQUISITE: PHYS 3212; MATH 2322.

6410. Introduction to Quantum Theory. (3). Experimental basis of quantum theory; development of the Schrodinger equation and its solution for simple systems; selected applications in atomic and molecular structure. *Three lecture hours per week.*

6510. Thermodynamics. (3). A mathematical treatment of thermodynamics, including such topics as work, energy, enthalpy, entropy, reversible and irreversible

processes, equilibria, specific heats, and phase transitions. *Three lecture hours per week.* RECOMMENDED PREREQUISITE: PHYS 3112 or 3212.

6610. Solid State Physics. (3). Consideration of such topics as lattice vibrations, specific heats, electrical and thermal conduction in solids, magnetism. *Three lecture hours per week.*

7010. Fundamental Concepts of Classical Physics for Teachers. (3). Basic concepts of Newtonian mechanics, heat and sound. Emphasis on increasing understanding in classical physics, providing demonstrations of physical principles suitable for classroom use and designing and performing laboratory experiments. Credit does not apply toward a major or minor in chemistry or physics.

7011. Physics Practicum I. (1). Practicum or laboratory experiments, laboratory techniques, laboratory management and supervised experience in presenting demonstrations with emphasis on concepts covered in Physics 7010. *Two laboratory hours per week.* COREQUISITE: PHYS 7010.

7020. Fundamental Concepts of Contemporary Physics for Teachers. (3). Basic concepts of electricity and magnetism, optics, atomic and nuclear physics. Laboratory experience. Credit does not apply toward a major or minor in chemistry or physics.

7021. Physics Practicum II. (1). Continuation of Physics 7011 with emphasis on concepts covered in Physics 7020. *Two laboratory hours per week.* COREQUISITE: PHYS 7020.

7030. Fundamental Concepts of Modern Physics for Teachers. (3). Basic concepts of modern physics, special relativity, solid state physics, particle physics, and space technology. Background in physics recommended. Credit does not apply toward a major or minor in chemistry or physics.

7031. Physics Practicum III. (1). Continuation of Physics 7021 with emphasis on concepts covered in Physics 7030. *Two laboratory hours per week.* COREQUISITE: PHYS 7030.

7050-59. Special Topics in Advanced Physics. (3-6). Selected topics in advanced physics. Topics are varied and announced in *Schedule of Classes*.

7060. Individual Study in Advanced Physics. (1-3). Independent investigation of an area of advanced physics under supervision of a Physics faculty member. Written report required. PREREQUISITE: permission of chair. Course may be repeated for a maximum of six hours credit.

7070. Fundamental Concepts in Astronomy for Teachers. (3). Observational astronomy, the solar system, stars and stellar evolution, galaxies and cosmology. Occasional night observations may be held. Credit does not apply toward a major or minor in physics or chemistry.

7100. Classical Mechanics. (3). An analytical study of mechanics of particles and rigid bodies by Lagrange's, Hamilton's and Hamilton-Jacobi methods. The special theory of relativity, canonical transformation, and Poisson brackets are among the concepts emphasized.

7200. Quantum Mechanics I. (3). Physical principles and mathematical formalism of quantum theory, with emphasis on applications in atomic, molecular and solid state physics, scattering theory and absorption and emission of electromagnetic radiation.

7201. Quantum Mechanics II. (3). Continuation of PHYS 7200; scattering theory, quantum dynamics, spin, perturbation methods and Hartree-Fock. PREREQUISITE: PHYS 7200.

7210. Relativistic Quantum Mechanics. (3). Quantum mechanics of relativistic particles including the Dirac equation, relativistic covariance, solutions for free particles, particles in electromagnetic fields, particles in central fields, methods of approximation and massless particles. *Three lecture hours per week.* PREREQUISITE: PHYS 7200 or permission of instructor.

7220. Relativistic Quantum Fields. (3). General formalism of fields, the Klein-Gordon field, second quantization of the Dirac field, quantization of electromagnetic fields, interacting fields, scattering matrix, perturbation theory, dispersion relations and renormalization. PREREQUISITE: PHYS 7210 or permission of instructor.

7230. Elementary Particles. (3). Introduction to elementary particles, elementary particle dynamics, relativistic kinematics, symmetries, bound states, Feynman calculus, quantum electrodynamics, electrodynamics of quarks and hadrons, quantum chromodynamics, weak interactions and gauge theories. **PREREQUISITE:** PHYS 7200 or permission of instructor.

7300. Electrodynamics. (3). An advanced course in electricity and magnetism. Topics include fields and potentials, energy methods, steady currents and magnetic materials, Maxwell's equations and electromagnetic waves.

7375. Methods of Mathematical Physics I. (3). (Same as MATH 7375). Finite dimensional vector spaces, matrices, tensors, vector fields, function spaces, differential and integral operators, transform theory, partial differential equations. **PREREQUISITE:** Background in ordinary differential equations and linear algebra.

7376. Methods of Mathematical Physics II. (3). (Same as MATH 7371). Continuation of PHYS 7375. Complex variable theory, asymptotic expansions special functions, calculus of variations, additional topics on matrices and operators, topics in non-linear analysis. **PREREQUISITE:** PHYS 7375.

7401. Radiological Physics I. (3). Introduction to generation, transport and biological effects of ionizing radiation as encountered in radiology and nuclear medicine; dose concepts and units and radiological imaging. *Three lecture or equivalent laboratory hours per week.*

7402. Radiological Physics II. (3). Continuation of PHYS 7401. Radiation interactions in tissues, radiation detecting equipment, imaging with radionuclides, radiopharmaceuticals, calibration of radiation sources, internal dose distribution, radiation hazards evaluation. *Three lecture or equivalent laboratory hours per week.* **PREREQUISITE:** PHYS 7401.

7403. Medical Radiation Protection. (2). Medical radiation dose, dose limits, relative risks and protective measures. Emphasis on rational understanding of risk and its control in field where personnel are purposefully exposed to radiation. *Two lecture or equivalent laboratory hours per week.* **PREREQUISITE or COREQUISITE:** PHYS 7402.

7404. Medical Radiation Dosimetry. (3). Measurement of radiation and radiation dose in clinical applications. Emphasis on physical principles underlying modern dosimetric techniques and devices. *Three lecture or equivalent laboratory hours per week.* **PREREQUISITE or COREQUISITE:** PHYS 7200, 7402.

7411. Advanced Physics of Radiological Imaging I. (3). Theoretical basis for evaluation images; image descriptors, spatial and frequency domain concept, noise and related concepts. *Three lecture or equivalent laboratory hours per week.* **PREREQUISITES:** PHYS 7040 and PHYS 7402.

7412. Advanced Physics of Radiological Imaging II. (3). Continuation of PHYS 7411. Imaging modalities currently used in clinical radiology and nuclear medicine; calibration and use of imaging systems. *Three lecture or equivalent laboratory hours per week.* **PREREQUISITE:** PHYS 7411.

7413. Advanced Physics of Radiation Therapy I. (3). Radiation sources, treatment planning and radiation dosimetry in radiation therapy. *Three lecture or equivalent laboratory hours per week.* **PREREQUISITE or COREQUISITE:** PHYS 7404.

7414. Advanced Physics of Radiation Therapy II. (3). Continuation of PHYS 7413. Therapeutic modalities used in clinical radiology and nuclear medicine. *Three lecture or equivalent laboratory hours per week.* **PREREQUISITE:** PHYS 7412.

7421. Introductory Clinical Practicum in Medical Physics. (2). Supervised clinical experience in medical physics, including procedures in diagnostic radiology, therapeutic radiology and nuclear medicine. **PREREQUISITE:** PHYS 7402.

7422. Intermediate Clinical Practicum in Medical Physics. (1). Continuation of PHYS 7421 with emphasis on role of medical physicist in clinical environment. **PREREQUISITES:** PHYS 7421 and PHYS 7411 or 7413.

7423. Advanced Clinical Practicum in Medical Physics. (2). Continuation of PHYS 7422 with emphasis on preparation for American Board of

Radiology certification in Diagnostic Radiological Physics and/or Medical Nuclear Physics, or in Therapeutic Radiological Physics. **PREREQUISITES:** PHYS 7422 and PHYS 7412 or 7414.

7520. Statistical Mechanics. (3). Elements of kinetic theory and applications to gases, specific heats, magnetism, etc. Partition functions, introduction to Boltzmann statistics and quantum statistics. *Three lecture hours per week.*

7600. Advanced Solid State Physics. (3). Quantum mechanical treatment of electronic and vibrational states of metals, semiconductors and insulators, transport phenomena, superconductivity, physics of defects in solids. **PREREQUISITE:** PHYS 7200 or permission of instructor.

7710. Advanced Topics in Optical Spectroscopy. (3) Advanced topics in atomic and molecular spectroscopy, including the interaction of optical radiation with matter, the transition probabilities, hyperfine structure, applications of group theory to spectroscopic problems.

7995. Seminar. (1). Selected topics in physics research including areas of medical physics. Students required to give oral presentation based on library or original research. Course may be repeated once for credit.

†**7996. Thesis. (1-6).** Original investigation of an assigned problem in the area of graduate study to be carried out under the supervision of a qualified member of the staff. This investigation will furnish the material for a thesis. Scientific articles, progress reports, and special problems of interest are reviewed and discussed by the student in seminars each semester. A maximum of six semester hours credit is allowed toward a master's degree.

†*Grades of S, U, or IP will be given.*

POLITICAL SCIENCE

JAMES D. KING, Ph.D., *Chair and
Coordinator of Graduate Studies (M.A.)*

Room 427, Clement Hall

DAVID N. COX, Ph.D.
*Coordinator of Graduate Studies and
Health Services Administration (M.P.A.)*

I. The Department of Political Science offers individually-tailored programs leading to the Master of Arts in Political Science and the Master of Public Administration. The Master of Arts degree in Political Science provides a broad foundation in politics and government for those intending further graduate study or careers in education and public service. Both thesis and non-thesis programs are available. Also, the study of Political Science may be combined with study in related areas.

The Master of Public Administration degree programs educates men and women for careers in government and for employment with non-profit and publicly-oriented organizations. The program combines interdisciplinary academic preparation with governmental internship experience.

The Institute of Governmental Studies and Research provides unique research opportunities and field experience for students in both programs; academic credit can be obtained for internship programs with national, state and local governments, as well as for research and study abroad.

Assistantships are available for qualified students in both programs.

All graduate students will consult with their adviser in the Department of Political Science as to the program of study they expect to follow.

II. The Department of Political Science offers a graduate program leading to the Masters of Arts with a major in Political Science, and a graduate program leading to the Master of Public Administration degree. Special fields of study included in the Master of Arts in Political Science are: American Politics (National, State, and Urban) and Public Law; Political Thought; Political Behavior and Analysis; Comparative Politics; International Relations; Public Administration and

Policy. For the Master of Public Administration program, the following concentrations are provided: General Public Administration; Urban Management and Planning; Health Services Administration, and Human Resource Administration.

III. M.A. Degree Program

A. Program Admission

A minimum of 18 semester hours in Political Science, except in special cases approved by the Chair of the Department. Students must meet the University's requirements for admission to the Graduate School.

B. Program Requirements

1. Students who write a thesis must complete 33 hours of graduate courses including 3-6 hours of credit for PQLS 7996, Thesis. Students who do not write a thesis must complete 36 hours of graduate courses.

2. Satisfactory completion of Political Science 7100. Seminar in Scope and Methods of Political Science Research.

3. At least 24 semester hours of the courses must be taken at the 7000 level, twelve of which must be in Political Science (27 hours nonthesis option).

4. Satisfactory performance on a Comprehensive Examination.

5. A minimum of two courses from three of the fields of Political Science listed above, unless a student chooses to take at least six hours in a collateral field in a related area.

6. At the discretion of the Graduate Coordinator, six to nine hours in graduate work outside political science may be applied to the Master of Arts in Political Science.

7. No more than 6 semester hours of internship courses may be counted toward the 33 or 36 semester hour requirement.

IV. M.P.A. Degree Program

A. Program Admission

A suitable record of preparation in the social sciences or in other relevant courses. Students with inadequate preparation may be admitted and the deficiencies removed without graduate credit.

B. Program Prerequisites

Those entering the program who have had no public administration courses must take Political Science 3601, Public Administration, or its equivalent.

C. Program Requirements

1. A total of at least 42 semester hours in graduate courses.

2. Completion of the following core curriculum. A grade of B or better must be earned in each course:

PQLS 7602 — Seminar in Public Finance Administration

PQLS 7605 — Seminar in Public Personnel Administration

PQLS 7600 — Seminar in Administrative Theory

PQLS 7601 — Methods of Problem Solving in Public Administration

3. Satisfactory completion of Political Science 6101, Techniques of Political Analysis, or an equivalent course.

4. Satisfactory completion of POLS 7610, Internship in Public Administration. (6). This requirement can be met by a supervised internship or by administrative experience in a public or nonprofit organization. Students currently employed in an administrative capacity may petition a graduate committee for permission to substitute an alternative to the supervised internship. Three or six semester hours may be allowed for administrative experience in a public or nonprofit organization, upon submission of a written report of that experience. In those cases where three semester hours are allowed, the student is required to complete PQLS 7611, Practicum. (3).

5. At least 30 semester hours of the courses must be taken at the 7000 level, twelve of which must be in Political Science.

6. Completion of a concentration of courses in one of the following areas:

General Public Administration
Health Services Administration
Human Resource Administration
Urban Management and Planning

7. The Master of Public Administration is an interdisciplinary degree and students may take up to 12

semester hours of their work outside of the Department of Political Science with the approval of the adviser.

8. Satisfactory completion of a Comprehensive Examination.

E370 POLITICAL SCIENCE (POLS)

6101. Political Statistics. (3). An introduction to the analysis of quantitative data used to test hypotheses in the fields of political science and public administration, including both parametric and non-parametric techniques. Particular attention is given to alternative measures of association and significance, regression, factor analysis, path analysis, and causal modeling.

6211. Constitutional Law — National Powers. (3). An analysis of the relationships and controls of the three branches and the nature of the division of power between the nation and the states, with emphasis on the role of the Supreme Court as the arbiter in the constitutional system.

6212. Constitutional Law: Origins and Evolution of Civil Liberties in U.S. (3). Background, role and legitimate extent of civil rights and liberties in U.S.

6213. Public Policy. (3). The analysis of selected public policy issues and the interplay of organization and politics in the policy making process.

6214. The Presidency and Executive Decision-Making. (3). Structure role of the President in American political system; growth of the Presidency, presidential elections, executive decision-making process, and limitations on presidential power.

6215. Constitutional Politics and the Judicial Process. (3). An examination of the limits of the political resources and power of the judiciary. Primary attention is directed toward the extent to which the United States Supreme Court is able to obtain compliance with its decisions on highly politicized and controversial questions of public policy. To that end, it investigates the Court in conflict with other branches of the national government, the state governments, and public opinion.

6216. Interest Groups in American Politics. (3). Role and impact of interest groups within the American political system, including group theory, tactics, and relationships with various governmental institutions.

6217. The Legislative Process. (3). Origins, organization, functions, and activities of U.S. Congress and American state legislatures.

6221. Urban Administration. (3). Examination of politics, administration, and public policy in an urban context; focus on the administrative aspects of selected governmental policy-making processes; interrelationships of governments at various levels; urban challenges facing modern public administration.

6224. Urban Problems. (3). A study of selected problems in urban administration, politics, and policies.

†6230. Legislative Internship. (3-12). Supervised internship working with the Tennessee General Assembly or other legislative bodies on current legislative programs. Seminar sessions are held to discuss and analyze the problems with which the interns are working. May be repeated for a total of 12 credits. PREREQUISITE: Permission of department. (S/U).

6305. Soviet Government and Politics. (3). Organization and function of the authoritarian state, with emphasis on the role of the Communist Party and ideology.

6307. Government and Politics of Communist China. (3). A study of the institutions of government, the political process, political elites, political groups and political socialization of Communist China.

6401. Modern Political Ideologies. (3). A study of major ideologies of democracy, communism, and fascism as well as capitalism, socialism, racism, and nationalism, and ideologies of the developing or "third" and "fourth world" nations.

6405. Origin and Development of American Political Thought. (3). Origin and development of political thought in the United States from the colonial to the present time, with emphasis placed on the relation between political thought and political institutions and practices.

6408. Studies in Political Theory. (3). Special issues in political theory. May be repeated for a maximum of 6 hours credit with permission of instructor.

6409. Marxism and Politics. (3). Impact of Marxism on political ideas, practices and movements throughout the world.

6420. Political Thought and the Classics: Ancient. (3). Close reading of classical ancient texts with view to their position in great tradition of political theory.

6421. Political Thought and the Classics: Modern. (3). Close reading of classical modern texts with view to their position in great tradition of political theory.

6501. Contemporary Problems in International Relations. (3). Studies or problems in the area of world politics. May be repeated for a maximum of 6 hours credit with permission of instructor.

6502. Soviet Foreign Policy. (3). Basic concepts about Soviet foreign policy; development and techniques; present patterns of Soviet relations with key nations; major problems in future relationships.

6504. International Law. (3). An analysis of the nature, scope, duties, rights, and evolutionary trends of international law.

6505. Comparative Communist Systems. (3). A cross-national comparison of the adaptation of ruling and non-ruling communist parties to different political environments. Includes examination of inter-party and the intra-block relations.

6506. Problems in American Foreign Policy. (3). Studies or problems of American foreign policy. May be repeated for a maximum of 6 hours credit with permission of instructor.

6508. Theories and Concepts in International Relations. (3). Theoretical approaches to study of international politics. Consideration of various schools of thought, methods, and substantive literatures.

6510. International Political Economy. (3). Consideration of manner in which political processes affect and are affected by economic processes at global level.

6605. Program and Policy Evaluation. (3). Models, theories and techniques of program and policy evaluation in public administration. Includes evaluation research design, data collection and analysis, dissemination of results and possible applications of evaluations to policy-making and administration. Organizational and political contexts of evaluation.

6710-19. Special Topics in Political Science. (1-3). Topics of current significance in public issues. May be repeated for a maximum of 6 hours credit.

6801. Science and Politics. (3). An analysis of some of the multiple interactions between the political systems and scientific and/or technological developments. The major objective is to explore the complexities surrounding the relationship between public policy and science, as exemplified in government decisions and actions regarding the support, use and control of scientific research and applied technology.

7100-8100. Seminar in Scope and Methods of Political Science Research. (3). Survey of major theoretical approaches to study of politics, with emphasis on both analytic and empirical aspects of political inquiry.

7101-8101. Techniques of Political Data Analysis. (3). Overview of methods of empirical political analysis, including: designing research, data collection, analysis, interpretation, and reporting.

7201-8201. Seminar in American Politics. (3). Selected topics in American government and politics. May be repeated for a maximum of 6 credit hours.

7212-8212. Seminar in Constitutional Problems. (3). Problems in contemporary constitutional law.

7213-8213. Seminar in Public Policy Analysis. (3). Empirical and normative analysis of public policy at the local, state, national, and international levels. Emphasized are the theories, literature, and methodologies current to this field. PREREQUISITE: POLS 6101 or equivalent.

7216-8216. Seminar in Political Behavior. (3). Selected topics in political behavior. May be repeated for a maximum of 6 credit hours.

7224-8224. Seminar in Urban Problems. (3). Problems inherent in the growing urban developments in the United States. The governmental organization of metropolitan areas and the difficulties of coordination of government functions. Proposed remedies and the reception of new approaches in selected metropolitan areas.

7225-8225. Seminar in Problems in State Government. (3). Selected policy making processes and policy problems arising from the operation of legislative, administrative, and judicial machinery. Special attention will be given to Tennessee.

7302-8302. Seminar in Comparative Politics. (3). Selected topics in comparative politics. May be repeated for a maximum of 6 credit hours.

7303-8303. Seminar in Political Development. (3). Comparative study of the process of political change in traditional developing nations.

7401-8401. Seminar in Political Theory. (3). Selected topics involving the development of political thought. May be repeated for a maximum of 6 hours credit.

7501-8501. Seminar in International Relations. (3). Selected topics in international politics and foreign policy. May be repeated for a maximum of 6 credit hours.

7502-8502. Seminar in National Security Policy. (3). The defense policy of the United States and selected foreign powers. The national security process, strategic theory and doctrine, and civil-military relations are treated.

7600-8600. Seminar in Administrative Theory. (3). Significance of public administration in American government, includes an introduction to formal organization theory and bureaucracy, decision-making theory, leadership and motivational theory, and current trends and problems in the study of public administration.

7601-8601. Methods of Problem Solving in Public Administration. (3). Introduction to models, theories, and technique levels; emphasis on political forces and administrative of problem solving in public administration, including the application of systems theory, structural-function analysis, rational and incremental decision theories, models of public policy analysis, group theory, elite theory, and simulation. PREREQUISITE: POLS 4101 or POLS 6101 or permission of the instructor.

7602-8602. Seminar in Public Finance Administration. (3). (6602). Detailed study of administrative and political problems of fiscal policy, the budgetary process, and fiscal controls.

7603-8603. Public Sector Collective Bargaining. (3). Employee organizations and the development of collective relations in the public and hospital sectors. Special topics include unions and management wage policies, collective negotiation and bargaining, and the evaluation of the impact of unionization on public policy and union relations in the nonprofit sector.

7604-8604. Social Science in Law. (3). Applications of social science to such public policy questions as discrimination, obscenity, parole, trademarks, death penalty, child custody, and criminal offender profiles.

7605-8605. Seminar in Public Personnel Administration. (3). (6603). The study of policies, methods, and techniques utilized in public personnel administration. Special attention is given to problems reflecting contemporary demands upon personnel organizations. The capacity to analyze problems, select the most effective means of dealing with them and plan appropriate courses of action is developed through case example.

7606-8606. Seminar in Administrative Law. (3). (6611). Role and nature of administrative law, including procedural requirements and judicial review of administrative actions and liability of government for torts and breach of contract.

†7610. Internship in Public Administration. (3-6). Participation in some type of field experience, including a written report critically describing the student's responsibilities. Field experience may result from a supervised internship in cooperating public or nonprofit organizations or from appropriate administrative experience if the student is employed in a public or nonprofit organization. PREREQUISITE: Permission of the department.

7611. Practicum. (3-6). The application of knowledge, concepts and analytical tools to contemporary issues that challenge modern managers. Individuals select special projects to pursue in local public and nonprofit organizations and conduct research on these projects under the guidance of a faculty committee or work with the Institute of Governmental Studies and Research on current problems in public administration. May be repeated for a total of 6 credits. PREREQUISITE: Permission of the department.

7621-8621. Health Care Administration I. (3). Analysis of health and medical care systems with reference to public, private and voluntary agencies at local, state, regional, and national orient the administrator to health and medical care systems with which he may work. **PREREQUISITE:** POLS 3601 or permission of the Coordinator of Graduate Studies (M.P.A.).

7622-8622. Health Care Administration II. (3). Administrative characteristics of hospitals and health care agencies; management problems of program development; construction of programs; staffing; budgeting and financial management; performance standards; interagency coordination. **PREREQUISITE:** PQLS 7600 and 7621.

7623-8623. Health Care Administration III. (3). An examination of administrative practice as it relates to the planning process in health care delivery; a review of techniques and methods used in partial and comprehensive planning. **PREREQUISITE:** POLS 3601 or permission of the Coordinator of Graduate Studies (M.P.A.).

7624-8624. Health Care Administration IV. (3). Examination of health organization administration decision-making techniques and methods stressing quantitative approaches. Special reference is made to planning and evaluation methods in health and medical care systems. **PREREQUISITE:** POLS 7602 and 7621 or permission of the Coordinator of Graduate Studies (M.P.A.).

7625-8625. Legal Issues for Health Administrators. (3). Impact of legal issues on health organizations; topics include: patient rights, corporate liability, malpractice issues. **PREREQUISITE:** Permission of graduate coordinator.

7626-8626. Health Care Politics and Policy. (3). Political, economic, and social forces affecting the contemporary health care system in United States. Some cross-national comparisons with other health care policy systems and issues that they face. **PREREQUISITE:** Permission of graduate coordinator.

7627-8627. Issues in Health Services Administration. (3). Seminar for discussion of issues affecting administrators of health services organizations. Includes issues such as right to die, responsibility for health, access for underserved populations, organ transplantation. **PREREQUISITE:** Permission of graduate coordinator.

7628-8628. Mental Health Policy and Law. (3). Mental health systems, including voluntary and involuntary hospitalization, incompetency and guardianship, and mental health issues in criminal process; legal and policy concerns for mental health professions, including regulation, malpractice, informed consent, and records confidentiality.

7629-8629. Aging Policy and Law. (3). Social control and social justice considerations in such policy areas as protective services, Social Security, Medicare and Medicaid, long-term care, age discrimination, and death with dignity.

7633-8633. Managing Public Human Resources. (3). Theories, strategies, and systems of managing and planning human resources in non-profit and public agencies.

7634-8634. Developing Public Human Resources. (3). Organizational, group, and individual development processes and philosophy for public, non-profit, and health care agencies; special emphasis on application of knowledge and skills.

7635-8635. Issues in Public Human Resources. (3). Special issues of current interest that relate to management, planning, and development of human resources in non-profit and public agencies.

7702-8702. Independent Study. (3). May be repeated for a maximum of six hours. Independent investigation of research problems or directed readings in selected area of political science. **PREREQUISITE:** Permission of instructor.

7710-19-8710-19. Special Topics in Political Science. (3). Intensive study of selected topics in political science. May be repeated for a maximum of six hours.

†7996. Thesis. (3-6). The student must write and defend satisfactorily a thesis on a subject approved by the major professor.

†Grades of S, U, or IP will be given.

PSYCHOLOGY

FRANK C. LEEMING, Ph.D., *Chair
and Coordinator of Graduate Studies
Room 202, Psychology Building*

I. The Department of Psychology offers Ph.D. programs in Clinical Psychology and in Experimental Psychology, an M.A. (terminal, non-thesis) program in School Psychology, and an M.S. (either thesis or non-thesis) program in General Psychology. Students admitted to one of the Ph.D. programs complete the requirements for the M.S. in General Psychology (with thesis) as part of their Ph.D. requirements. An Ed.S. degree with a major in Foundations of Education and a concentration in School Psychology is also available (offered collaboratively with the College of Education). In addition, the M.S. in General Psychology program may be entered as a terminal program.

Admission to each of these programs is handled separately. Each has its own admission criteria, and application must be made for a particular program before an applicant is considered for that program. Any person admitted to one of these programs who desires to transfer to another program within the department must make formal application to that program and will be evaluated competitively against the same criteria and on the same time schedule as all other applicants for that program.

The departmental objective is to educate both experimentally sophisticated professional psychologists and professionally appreciative research psychologists. The department professes a strong research emphasis, with a very diverse array of theoretical models and frames of reference represented on the faculty.

II. M.S./Ph.D. Degree Program

In these programs the M.S. is preparatory to continuation in the program. In order to be advanced to doctoral study, a student must have satisfactorily completed all requirements for the M.S. (with thesis) at Memphis State, or have completed an equivalent degree from another institution. Students possessing a master's degree without a thesis will be required to complete a thesis before being advanced to doctoral study.

The M.S./Ph.D. degree program offers training in two broad areas of specialization; Clinical Psychology (APA approved) and Experimental Psychology. Within the Clinical area, in-depth training is available in behavioral medicine, behavioral science methodology, child clinical, and clinical neuropsychology. Within the Experimental area, in-depth training is available in behavioral science methodology, biopsychology, cognitive processes, developmental, learning, neuro and physiological psychology, sensory processes and perception, and social psychology. Special courses, as determined by department faculty, are required in these cases and students should familiarize themselves with required courses. Students interested in other areas should contact the department further information.

A. Program Admission and Prerequisites

Applicants to the M.S./Ph.D. degree program are evaluated once each year only, for admission in the Fall semester; applicants for Spring admission are not considered. All application information must have been received by February 1 for a candidate to be considered for admission.

Required:

1. A grade point average of at least 2.5/4.0 in all undergraduate course work. Applicants with undergraduate records at this minimum level are not ordinarily admitted.

2. A minimum of 18 semester hours in undergraduate psychology courses, including courses in Quantitative Methods (Psychological Statistics), and Experimental Psychology; undergraduate coursework in Physiological Psychology, Psychology of Learning, and History of Psychology is strongly recommended.

Students lacking some or all of these prerequisite courses, but presenting an exceptional undergraduate record, may be granted graduate admission as regular, or as special, students; they will be expected to remove all undergraduate deficiencies during their first academic year.

3. GRE aptitude (verbal plus quantitative) total scores of at least 1100. Applicants with low test scores will be considered only if other supporting evidence (letters of reference, undergraduate grade point average) is outstanding.

4. Letters of recommendation from at least three persons familiar with the applicant's academic background and aptitude for graduate work in psychology, specifying in detail the applicant's capabilities for graduate study and for future performance as a psychologist.

5. A statement of 500-1000 words indicating the specific graduate program area being applied for, the applicant's present interests and career goals, research and applied interests, and prior research and applied experience. Prior undergraduate research interests and research involvement are weighted heavily.

6. A willingness to be interviewed by members of the department faculty, should that be required.

B. Program Requirements

1. *Credit Hours.* A minimum of 33 semester hours of graduate credit beyond the bachelor degree is required for the M.S. degree in Psychology, and a minimum of 80 semester hours of graduate credit beyond the bachelor degree is required for the Ph.D. degree in Psychology. However, most students in this department take between 90 and 100 credits in courses, seminars, and applied and research practica en route to the Ph.D. degree. All work for graduate credit must be approved by, and must be completed at a level of performance satisfactory to, the graduate faculty of the department. No minor is required; students may take coursework for degree credit outside the department upon prior approval of the graduate faculty of the department.

Students with graduate credits earned at another institution, upon matriculation at Memphis State, may petition to have these credits applied toward their degree requirements at Memphis State. While such credits are not automatically transferred and must be approved by the area faculty, a maximum of 6 semester credit hours earned elsewhere may be applied toward the Master's degree requirements; for transfer students who have attained a Master's degree elsewhere, a maximum of 50 semester credit hours may be applied toward the Ph.D. degree requirements.

Particularly where students are specializing in a professional area, the awarding of the doctorate does not merely attest to the accumulation of the specified number of hours in the classroom but also to the acquisition of sophisticated professional and research skills. The faculty has the responsibility to both the public and the profession of psychology to award this degree only when the student has achieved a satisfactory level of professional and research competencies as judged by the graduate faculty of the department. Further, students must exhibit high integrity and moral character consistent with the standards of ethical principles set forth by the American Psychological Association and Tennessee law.

2. *Enrollment.* With only rare exception, all M.S./Ph.D. degree candidates are expected to carry a minimum of three courses (9-10 credits) per semester, and to devote full time during their enrollment to pursuit of degree-related activities.

3. *Research.* All M.S./Ph.D. degree students are expected to be active in research collaboratively with members of the department faculty each semester they are enrolled.

4. *Master's Thesis* (PSYC 7996) and *M.S. Comprehensive Examination.* Each M.S. student is expected to complete an independent research project, culminating in a Master's thesis. Upon completion of the thesis, the student takes an oral examination which assesses not only mastery of the thesis topic but also broader awareness of the theoretical and empirical issues in contemporary psychology. This oral examination serves as the M.S. comprehensive examination.

5. *Specialty Examination.* Each Ph.D. student will take a comprehensive written, oral and performance examination in the student's major area of specialization in psychology, typically during the third or fourth year of residence. Major Area Papers (PSYC 8620) may be used as an option to the written specialty examination.

6. *Comprehensive Educational Program.* In order that all M.S./Ph.D. candidates obtain comprehensive training in the diverse areas of psychology, they are required to complete PYSC 7000, 7301, 7302, 7303

Psychology

during the first two years. In addition, all M.S./Ph.D. candidates must complete a third statistics course approved by the department plus at least one course in each of the following four areas:

- a. Biological Bases of Behavior: PSYC 7701/8701; 7702/8702, 7703/8703, 7704/8704.
- b. Cognitive-affective Bases of Behavior: PSYC 7208/8208, 7210/8210, 7211/8211, 7801/8801
- c. Social Bases of Behavior: PSYC 7200/8200, 7206/8206, 7215/8215, 7217/8217, 7219/8219
- d. Individual Behavior: PSYC 7202/8202, 7207/8207, 7412/8412, or for clinical students 7433/8433.

7. *Dissertation and Final Examination* (PSYC 9000). Upon completion of an independent dissertation research project acceptable to the faculty, each student will take a final oral examination oriented toward, but not exclusively on, the student's dissertation research and major area of specialization.

Students in the clinical psychology program are expected to meet these additional requirements:

8. *Required Courses and Activities for Clinical Students.*

Students in the clinical psychology program must complete the following courses: PSYC 7412/8412, 7431/8431, 7432/8432 (optional for child-clinical students), or 7433/8433, and 8 credit hours of PSYC 7434/8434 (two courses of 4 hours credit each under two different clinical faculty members). As part of their clinical training, they must also participate in the activities of the Psychological Services Center. Students fulfill this requirement sitting in on the psychotherapy supervision of advanced clinical students for at least one-half hour per week during the first year and by enrolling in 7438/8438, 1 credit in the fall and 2 credits in the spring, during each of years two, three, and four in the clinical program. 7438/8438 credit is taken in addition to the regular three course load. In total, clinical students will enroll in a minimum of 10 credits in the fall semester and 11 credits in the spring semester during years two, three, and four.

Funding during years two and three is fully integrated with scientist/practitioner training. Clinical students are required to take a one year clinical practicum in an external agency and a one year departmental research assistantship. The sequence of these two years will be determined on an individual basis. Funding during year four will be available at the students' option. The type of funding during year four may be in either of these areas depending upon (a) personal preference, (b) educational need, and (c) funding source availability.

(a) *Neuropsychology Subspecialty.* In addition to the general clinical requirements, clinical neuropsychology students must complete the following courses: PSYC 7701/8701, 7702/8702, 7703/8703, 7704/8704; nine credit hours of PSYC 7608/8608; nine credit hours of PSYC 7616/8616; and coursework in the areas of neuroanatomy and neuropathology.

(b) *Child-Clinical Subspecialty.* In addition to the general clinical requirements, child-clinical students must complete the following courses: PSYC 7207/8207, 7219/8219, and 7416/8416. Further, the requirement of two psychotherapy courses applicable to all clinical students must consist of family therapy (which may be satisfied by 7417/8417) and child behavior therapy (which may be satisfied by 7418/8418). Further, a major portion of practicum work must involve children, and the Master's thesis and doctoral dissertation must pertain to children.

9. *Clinical Internship.* For students in clinical psychology, a full-time one-year internship, in an agency approved by the director of training in clinical psychology, is required. A student cannot accept an internship unless the dissertation proposal has been approved in January of the year that the internship starts. Further, the dissertation data must be collected before the student can begin internship unless the internship agency gives written permission to the student to collect data while on internship.

III. M.A. and Ed.S. Degree Programs in School Psychology

This program is offered collaboratively with the College of Education, and coursework from both areas is required. Students entering the program must complete both the M.A. and the Ed.S. degrees, including an internship of one school year, in order to obtain an endorsement for certification. The Ed.S. degree is an

advanced sequence in the specialty and is to be pursued only by persons who have completed the M.A. degree or comparable degree with a concentration in school psychology, or who already hold school psychology certification. The program is part of the College of Education, accredited by the National Council for Accreditation of Teacher Education (NCATE), and has met the folio review requirements of the National Association of School Psychology (NASP)/NCATE Guidelines; also, it is formally approved as a competency-based program by the Tennessee State Department of Education, and leads to State certification in school psychology.

A. *Program Admission and Prerequisites*

1. An undergraduate overall grade point average of 3.00/4.00 (special consideration will be given to applicants with a GPA in the range of 2.5/2.99).

2. GRE Aptitude combined score of 900 (including at least 400 on either the Verbal or Quantitative Section) or a Miller Analogies Test Score of 45.

3. Letters of recommendation from at least three persons familiar with the applicant's academic background, aptitude for graduate work in school psychology, and interest in working with school-age children in school settings; these letters should come from professional educators and/or psychologists.

4. Undergraduate preparation in Psychology and/or Education. It is strongly recommended that applicants have at least 18 undergraduate hours in Psychology and/or Education, with preparation in the psychology of learning, psychological appraisal/measurement, human growth and development, and foundations of education.

It is possible to be admitted to the M.A. or Ed.S. programs in School Psychology on a full-time or a part-time basis. Those admitted are encouraged to complete the program as full-time students; part-time students must take a *minimum* of six credit hours per semester in this program.

B. *Program Requirements — M.A. Degree (36 credits)*

1. *Psychology courses* (21 hours): PSYC 7800, 7801, 7802, 7803, 7804, 7805, 7806.

2. *Education courses* (15 hours): EDPS 7121 or 7149, 7541, EDAS 7100, CIED 7002, SPED 7000 (or SPED elective or EDPS 7132 if characteristics of exceptional children course was taken at undergraduate level).

3. *Oral examination.*

4. *Participation in required service experiences* in the Psychological Services Center or other agency placements for training purposes may be an integral part of the required psychology coursework specified above in the School Psychology program.

C. *Program Requirements — Ed.S. Degree (30 credits)*

1. *Psychology courses* (6 hours): PSYC 7614, 7301 or a research elective.

2. *Education courses* (12 hours): EDPS 7112, CIED 7540-44 (choose one), COUN 7581 or 7582, and one elective chosen in consultation with adviser.

3. *School Psychology Internship* (PSYC 7812, 12 hours) is a one school year requirement taken at or near the completion of other work.

4. *Written examination.*

IV. M.S. Degree Program in General Psychology

A. *Program Admission and Prerequisites Required:*

1. An undergraduate grade point average of 2.5/4.0 is required for admission without special permission.

2. GRE aptitude total (verbal plus quantitative) of 800, or a Miller Analogies Test Score of 30.

3. Letter of recommendation from at least three persons familiar with the applicant's academic background and aptitude for graduate work in Psychology.

4. It is strongly recommended that applicants have 12 undergraduate hours in psychology, including a course in statistics.

5. Applications to the M.S. in General Psychology program will be considered throughout the year.

Admission to the M.S. in General Psychology program does not require a student to take any minimum number of credits per semester. The only constraint upon the pace at which the student pursues the degree is that credits more than six years old may not be counted toward the degree.

B. *Program Requirements*

1. All students in the M.S. in General Psychology program will be evaluated by the faculty at the completion of 15 credit hours of graduate work to determine if they will be permitted to continue in the program. Students may not register for courses beyond 15 credit hours until they have applied for faculty review and received permission to continue in the program. The first 15 credit hours must include:

(a) PSYC 7301 or equivalent

(b) PSYC 7302 or equivalent

(c) At least one of PSYC 7203, 7206, 7207, 7210, 7211, 7212, 7215, 7217, 7701

(d) Six additional credit hours of graduate work in Psychology exclusive of field practica, research practica, clinical practica, seminars and special topics courses (unless specifically designated otherwise) and core clinical courses (7431, 7432, 7433, 7434)

2. At the time a student applies for the 15 hour faculty evaluation, a brief statement of the student's goals and objectives in the M.S. in General Psychology program must be submitted with a list of the courses that are proposed for completion of the requirements for the degree. These courses may be in Psychology or in other departments at Memphis State. They merely have to fit into the student's goals and objectives. When approval to continue in the program beyond the 15 hours is granted, the particular program is also approved. Any subsequent changes in the program must have faculty approval. This program approval process is intended to ensure that students organize programs that are maximally focused upon those goals and objectives which they submitted.

3. A total approved program of 33 credit hours if the student elects to do a thesis, or 36 credit hours without a thesis.

4. A specialty examination covering the student's area(s) of focus will be taken during the last semester in the program.

E390 PSYCHOLOGY (PSYC)

7000-8000. Issues in General Psychology (3). Required of all doctoral degree candidates. A seminar discussion of the basic issues in contemporary psychology within their historical context, with extensive examination of their implications for theoretical and professional applications.

7010-19-8010-19. Special Topics in Psychology. (1-3). Topics are varied and announced in *Schedule of Classes*.

7108-8108. Psychology and Law. (3). Interface between law and psychology, covering such topics as malpractice, competency or insanity hearings, divorce and child custody, commitment procedures, right to treatment, and confidentiality. Of particular interest to students planning to practice as professionals. **PREREQUISITE:** Admission to graduate training program in Clinical Psychology or permission of instructor.

7200-8200. Social and Community Intervention. (3). Substantive issues and topics in community psychology, applied social psychology, public policy, and program evaluation. Of particular interest to students interested in applying psychology to social problem solving.

7203-8203. Behavior Analysis. (3). A comprehensive treatment of behavioral principles in their application to simple and complex forms of behavior. The course focuses on operant conditioning of animal behavior and demonstrates the basic behavioral principles at work in their simplest form. These operant conditioning principles are extended to human behavior occurring in the natural environment. Increasingly complex human behaviors are successively introduced.

7206-8206. Group Processes. (3). Social psychology of groups and organizations including social influence, leadership, and inter- or intra-group behavior.

7207-8207. Developmental Psychology. (3). An analysis of the course of development from conception to young adolescence in the "normal" individual. Emphasis on developmental methodologies and theories in the areas of physical and motor development, and cognitive and intellectual functioning.

7208-8208. Psychology of Perception. (3). An examination of the historical development, research, and major theoretical positions in the area of perceptual

psychology. Major emphasis is placed on theoretical and experimental treatment of the basic perceptual phenomena.

7210-8210. Psychology of Learning. (3) Examination and discussion of current research, and of theoretical and experimental problems in the area of learning and behavior modification. Topics covered include reinforcement, extinction, motivation, generalization, discrimination, retention, and forgetting.

7211-8211. Cognitive Processes. (3) Analyses of thinking, conceptualization, language and symbolic activity, and related mediational processes in the individual.

7212-8212. Industrial Psychology. (3) The application of psychological principles and findings to industrial settings analyzing personnel selection, classification and evaluation, employee attitudes, morale and motivation, and psychological factors in work.

7215-8215. Organizational Psychology. (3) The course deals with the major organizational determinants of individual and group behavior and performance. The characteristics of organization structure and climate are explored from both a classical and a contemporary viewpoint. Organization change and development theories are examined plus the major ancillary theoretical positions on leadership, individual and group performance, behavior modification, selection and training.

7216-8216. Behavior Management. (3) Application of the principles of operant-instrumental learning to human behavior in various settings such as educational, rehabilitative and institutional programs. Practical implementation of the principles of behavior analysis and management will be stressed and expected of the student. PREREQUISITE: PSYC 7203 or equivalent.

7217-8217. Social Psychology I. (3) An examination of the social psychological literature pertaining to the philosophy of human nature issues of the extent to which human behavior is (a) distinct from the behavior of other animals and (b) guided by understanding. Coverage includes such topics as language, aggression, interpersonal attraction, attribution, and self-perception.

7219-8219. Social and Personality Development. (3) A general survey of social and personality development from infancy through adolescence. The course consists of three sections: (1) general theoretical perspectives, including intrapsychic, cognitive, and social learning approaches; (2) intra-individual phenomena such as sex role, traits, moral development, etc.; (3) interindividual phenomena such as family interactions, peer interactions, and societal influences.

7301-8301. Research Design and Methodology. (3) The emphasis will be on mathematical and non-mathematical analyses of psychological data, theoretical and experimental implications of different analyses, various data collection techniques, and types of experimental and statistical control.

7302-8302. Advanced Statistics in Psychology I. (3) Introduction to general linear model; multiple regression analysis, single- and multiple-factor analysis of variance, and discriminant analysis; emphasis on using computer software programs to perform statistical analyses. PREREQUISITE: PSYC 2301 or equivalent.

7303-8303. Advanced Statistics in Psychology II. (3) Topics include complex analysis of variance designs, multi-variate analysis of variance, power analysis, and issues related to measurement theory. PREREQUISITE: PSYC 7302 or equivalent.

7304-8304. Measurement Theory and Psychometrics. (3) Measurement theory involved in the construction and evaluation of psychological measuring instruments will be stressed. Particular emphasis will be placed on scaling methods and their use in psychological research and evaluation.

7305-8305. Quantitative Methods for Reviewing Research. (3) Strategies for reviewing research findings in psychology and other social sciences to help investigators summarize and resolve conflicts in published and unpublished research; procedures for locating relevant studies, calculating effect sizes, and analysis of study outcomes.

7306-8306. Linear Structural Modeling. (3) Path models, path analysis, cross-lagged panel studies, confirmatory factor analysis, and complete latent variable causal models, including applications of latter to experimental and nonexperimental data.

7307-8307. Models of Program Evaluation. (3) History and nature of program evaluation, review of different approaches taken to evaluation by variety of major theorists in the field; practice in evaluation.

7412-8412. Psychopathology. (3) A survey of the manifestations of abnormal behavior and psychological processes. Detailed analysis of the clinical and experimental literature concerning psychological and psychiatric disorders and their etiology.

7414-8414. Clinical Hypnosis. (3) Current major theoretical views of nature of hypnosis, its clinical applications in areas (e.g., psychotherapy, pain control, symptom control). Elementary skills in using hypnosis.

7416-8416. Child Psychopathology. (3) A survey of the major theoretical formulations of childhood disorders, including learning, developmental, psycho-analytic and family systems theories. Organic, familial, and sociocultural influences are discussed. Emphasis is placed on basic research that contributes to our understanding of these difficulties. Traditional approaches to intervention are reviewed along with family treatment. PREREQUISITES: Admission to graduate training program in clinical psychology or consent of instructor.

7417-8417. Family Therapy. (3 or 4) The theoretical works of several important family therapists and researchers (e.g., Haley, Jackson, Satir) are discussed. Methodological issues and relevant research findings are reviewed. Special emphasis is placed on family interventions with certain childhood problems. A substantial practicum may be added to the course that requires the student to provide therapy to at least one family unit. PREREQUISITES: Admission to the graduate training program in clinical psychology or permission of instructor.

7418-8418. Behavior Therapy with Children. (3 or 4) Applications of learning models to effect behavioral change in children reviewed from theoretical, experimental, and clinical perspectives. Emphasis on intervening in natural environment and using parents, teachers, and peers in treating problems such as low academic achievement, inadequate social skills, hyperactivity, and child abuse. A substantial practicum component may be added to the course that requires the student to provide therapy to at least one child. PREREQUISITES: Admission to graduate training program in clinical psychology or consent of instructor.

7420-8420. Personal Construct Theory. (3) In-depth seminar on personal construct theory, a cognitively oriented theory of personality stemming from work of George Kelly. Philosophical assumptions and basic theory; use of repertory grid technique and its application to research on such topics as cognitive complexity, development, interpersonal relationships, psychopathology, and psychotherapy.

7431-8431. Clinical Practice. (4) This first course for graduate students admitted to the training program in Clinical Psychology introduces them to some major concepts, methods, and ethical responsibilities of the scientist-practitioner role, with practicum experience that includes intellectual assessment of children and adults; emphasis on applying research literature to clinical case conceptualization and intervention. PREREQUISITE: Admission to the graduate training program in clinical psychology.

7432-8432. Clinical Assessment: Case Conceptualization. (4) Continuing from the exposure to basic scientific and psychometric concepts during the clinical practice course (7431/8431), teaches skills in case conceptualization based on interview, personality measures (e.g., MMPI), and systematic observation with practicum experience; different assessment approaches are evaluated for empirical support and utility in case management. PREREQUISITE: Admission to the graduate training program in clinical psychology.

7433-8433. Clinical Assessment: Psychodiagnostics. (3) Introduction to battery of tests most typically used in professional settings, including MMPI, Rorschach (Exner), TAT and Sentence Completion instruments. Use of computers as adjunct to test interpretation. This course will be followed in the ensuing semester by a required practicum (1 hour) to provide supervised experience. PREREQUISITE: Admission to graduate training program in clinical psychology.

7434-8434. Clinical Psychotherapies. (4) In depth study with practicum of methods of psychotherapy and intervention strategies, their basic assumptions,

spheres of applicability, and typical outcomes. Therapeutic approach covered will depend upon the particular instructor. May be repeated for a maximum of 20 credits with a change in topic. PREREQUISITE: Admission to graduate training program in Clinical Psychology.

7437-8437. Clinical Special Topics. (3) Provides advanced conceptual discussion and supervised skill training in a variety of techniques not routinely covered in detail previously, thus amplifying in depth such clinical procedures as neuropsychological group therapy, implosive techniques, aversion methods, systematic desensitization, the design and execution of broad-spectrum composite change programs, "inpatient management", and therapeutic community approaches. (This may be repeated for a total of 9 credits.) PREREQUISITE: Admission to the graduate training program in Clinical Psychology.

†7438-8438. Practicum in Clinical Treatment Approaches. (1-3) Practical experience to students in clinical psychology, permitting them to work under professional supervision for 35 therapy sessions in the Psychological Services Center. Students conduct intake interviews, administer and interpret psychological tests, and provide therapy. May be repeated for a maximum of nine hours credit. PREREQUISITE: Admission to the graduate training program in clinical psychology.

The following seminars are systematic studies of current topics in the fields listed in the course titles. They may be repeated for a maximum of 9 credits each.

7501-8501. Seminar: General Psychology. (3)

7502-8502. Seminar: Physiological Psychology. (3)

7503-8503. Seminar: Experimental Psychology. (3)

7504-8504. Seminar: Comparative Psychology. (3)

7505-8505. Seminar: Quantitative Psychology. (3)

7506-8506. Seminar: Clinical Psychology. (3)

7507-8507. Seminar: Industrial Psychology. (3)

7508-8508. Seminar: Behavioral Science Methodology. (3)

7509-8509. Seminar: School Psychology. (3)

7510-8510. Seminar: Organizational Psychology. (3)

7512-8512. Seminar: Developmental Psychology. (3)

7514-8514. Seminar: Cognitive Science. (3)

7515-8515. Seminar: Social Psychology. (3)

7516-8516. Issues in Psychotherapy Research. (3) Research seminar examining empirical evidence concerning effectiveness of psychotherapy; readings include both classic contributions and current research findings; social programs and treatments.

The following research practicum courses are individualized advanced laboratory or field research activities in the areas listed in the titles. They may be repeated for a maximum of 9 credits each.

†7601-8601. Research Practicum: General Psychology. (1-3)

†7602-8602. Research Practicum: Physiological Psychology. (1-3)

†7603-8603. Research Practicum: Experimental Psychology. (1-3)

†7604-8604. Research Practicum: Comparative Psychology. (1-3)

†7605-8605. Research Practicum: Social Psychology. (1-3)

†7606-8606. Research Practicum: Clinical Psychology. (1-3)

†7607-8607. Research Practicum: Developmental Psychology. (1-3)

†7608-8608. Research Practicum: Neuropsychology. (1-3)

†7610-8610. Field Practicum: Clinical Psychology. (1-3) May be repeated for a total of 12 credits. Supervised experience in the use of psychological diagnostic, treatment, or community intervention procedures in various community agencies and facilities. PREREQUISITE: Admission to the graduate training program in Clinical Psychology, or consent of instructor.

†7611-8611. **Field Practicum: Social Industrial Psychology. (1-3).** (May be repeated for a maximum of 9 credits.) Seminar discussion and supervised experience in the application of basic psychological procedures and principles to social, personnel, and organizational activities in various industrial, military and community settings. **PREREQUISITE:** Admission to graduate training program in industrial-organizational psychology, or consent of the instructor.

†7614-8614. **Practicum: School Psychology. (1-9).** (May be repeated for a maximum of 9 credits.) Supervised experience in the use of psychological procedures in educational settings. **PREREQUISITE:** Admission to graduate training program in school psychology or consent of instructor.

7615-8615. **Special Problems. (1-3).** (May be repeated for a total of 6 credits.) Independent investigation of a research problem, or directed readings, in a selected area of psychology chosen in consultation with the instructor. **PREREQUISITE:** Consent of instructor.

†7616-8616. **Clinical Practicum: Neuropsychology. (3).** (May be repeated for a maximum of 9 credits.) The advanced student interested in neuropsychology will receive supervised experience in the use of psychodiagnostic techniques in various community settings. This training will cover the basic diagnostic techniques, specialized diagnostic techniques, and neurological assessment procedures. **PREREQUISITE:** Consent of instructor.

7701-8701. **Neuropsychology I. (3).** A comprehensive study of the relationships between brain function and behavior. The anatomy and physiology of the nervous system will be reviewed. Major emphasis is on various functional systems of the human brain such as language, learning, attention, activation, and memory.

7702-8702. **Neuropsychology II. (3).** Historical circumstances effecting the development of neuropsychology; investigation of the various techniques available for assessing central nervous system function, brain-behavior relationships, and normative and actuarial data. Emphasis on strategies for assessing cerebral dysfunction and patterns of symptoms.

7703-8703. **Neuropsychology III. (3).** Selective review of theoretical, research and applied issues in child neuropsychology, human brain development, hemispheric specialization, plasticity and effects of early trauma; childhood disorders associated with definite or suspected neurological impairment or dysfunction; introduction to child neuropsychological assessment as well as remediation and treatment of brain-related disorders in children.

7704-8704. **Neuropsychology IV. (3)** Examination and discussion of current research in learning as it relates to nervous system function and damage to the anatomical substrates of such function. Emphasis on behavioral plasticity and recovery of function following destructive lesions. Other topics include memory, reinforcement, motivation and sensory substitution.

7800-8800. **Introduction to School Psychology. (3).** School psychology including historical perspectives on events, roles and functions, and professional issues. State and national trends in certification, licensure, training and employment.

7801-8801. **Human Learning and Development: Principles. (3).** A survey of the psychological theories of human socialization with special emphasis on the empirical foundations of human learning and development. Special focus is on such processes as learning and transfer of training, cognitive and intellectual development and functioning, language acquisition and use, and information processing.

7802-8802. **Psychological Problems of the Child. (3).** Recognition and treatment of various childhood conditions including behavior disorders within the context of school psychology practice in public and other educational settings. Emphasis on problems encountered by exceptional children and their families, relevant research information and professional issues. **PREREQUISITE:** Course on characteristics of exceptional children or permission of instructor.

7803-8803. **Psychoeducational Assessment I. (3).** Critical analysis of intellectual assessment including skill development in administration, scoring, and interpretation of major individual tests of intelligence. Related psychoeducational instruments with emphasis on case study data collection and report writing.

PREREQUISITE: Admission to graduate studies in psychology or permission of instructor.

7804-8804. **Psychoeducational Assessment II. (3).** Critical analysis of personality assessment including skill development in administration, scoring, and interpretation of major personality assessment techniques. Related psychoeducational instruments with emphasis on case study data collection and report writing. **PREREQUISITE:** PSYC 7803 or permission of instructor.

7805-8805. **Psychological Intervention I. (3).** Introduction to practice of consultation techniques in school psychological services; overview of theory, research and issues with opportunities for practical experiences.

7806-8806. **Psychological Intervention II. (3).** Survey of direct intervention strategies employed in delivery of school psychological services including behavioral, cognitive-behavioral, group, family, crisis intervention, sex abuse and play therapy interventions; overview of theory, research, and issues with opportunities for practical experience.

†7812-8812. **Internship: School Psychology. (3-6).** A field placement in a community educational agency during which the student practices acquired psychological procedures and skills on a full- or part-time basis under intensive professional supervision. Includes a minimum of 1200 clock hours, at least 600 of which are in a school setting according to NASP guidelines. May be repeated to a maximum of 12 semester hours applied toward completion of the certification program in school psychology. **PREREQUISITE:** Admission to the graduate training program in School Psychology and approval of the program coordinator.

†7996. **Thesis. (1-3 or 9).** Independent research for Master's degree. Application for writing a thesis must be filled out on an approved form after consultation with major professor and filed with the Dean of Graduate Studies. One hour class restricted to final semester thesis work.

†8620. **Major Area Paper. (3).** Independent investigation of an approved topic of the student's specialization, leading to the preparation of a publishable paper following the format of the *Psychological Bulletin* or the *Psychological Review*. May be repeated for a maximum of 6 hours credit.

†9000. **Dissertation. (1, 3, 6, or 9)** Independent research for Doctor of Philosophy degree. Application for writing a dissertation must be filled out on an approved form that consultation with the major professor and filed with the Dean of Graduate Studies.

† *Grades of S, U, or IP will be given.*

SOCIOLOGY AND SOCIAL WORK

REBECCA F. GUY, Ph.D., *Chair*
Room 231 Clement Hall

MICHAEL TIMBERLAKE, Ph.D.,
Coordinator of Graduate Studies

I. The Department of Sociology and Social Work offers the Master of Arts degree with a major in Sociology.

II. M.A. Degree Program

Graduate students who select Sociology as a major area will consult with the Coordinator of Graduate Studies in the department as to their program of study.

A. Program Admission

Applicants for admission to the program must meet the admission standards of The Graduate School and have at least twelve hours of undergraduate work in sociology or equivalent experiences.

B. Program Requirements

1. Students may choose one of two degree programs: (A) the thesis program requires thirty (30) semester hours of graduate level work, which includes 3-6 hours of Sociology 7996 (Thesis); (B) the non-thesis program which requires thirty-three (33) semester hours of graduate level work and the successful passing of both written and oral comprehensive examinations. The following courses are required of all majors: SOCI 6312, 7210, and 7320 and one additional advanced course in sociology methodology.

2. For option (A), at least 24 semester hours of the student's course work must be in the Department of Sociology and Social Work. For option (B), at least 27 semester hours must be in the Department of Sociology and Social Work.

3. It is the responsibility of each student to obtain a copy of "Master of Arts Degree Program in Sociology Handbook" from the graduate coordinator or the department office. This document will answer most questions concerning the program.

E410 SOCIOLOGY (SOCI)

6211. **Contemporary Sociological Theories. (3).** Major frameworks of 20th century sociological thought, including theoretical schools of functionalism, exchange theory, critical theory, symbolic interactionism, phenomenological sociology, and ethnomethodology; current social and political trends and issues.

6312. **Intermediate Social Statistics. (3).** Multivariate analysis of social data. Use of computer programs for data management and statistical analysis. **PREREQUISITES:** SOCI 3311 and 3322, or their equivalent, or permission of the instructor.

6541. **Sociology of Aging. (3).** Ageism in sociocultural context; current beliefs, values, and norms regarding aging; structural location of aging in society, and implications of ageism in employment, poverty, private and institutional housing, crime, physical illness and mental illness.

6842. **Sociology of Occupations and Professions. (3).** Sociological analysis of the division of labor, occupational groupings, career patterns, and professional associations in modern American society.

6900-09. **Special Topics in Sociology. (3).** Topics are varied and announced in *Schedule of Classes*.

7120. **Seminar in General Sociology. (3).** General overview of the discipline. Sociological perspective, key sociological concepts and introduction to methods and theories employed in the field. (Recommended for students with limited undergraduate background in Sociology).

7210-8210. **Theory Seminar. (3).** An advanced analysis of recent developments in sociological theory, including the relationship of theory to empirical research.

7320-8320. **Seminar in Methods of Social Research. (3).** Issues and techniques in data collection for the design and implementation of independent research projects; logic of conducting social scientific research, ethical considerations, logic of sampling, various methods of collecting data for social research (e.g., experimental design, participant observation, survey research/questionnaire construction, and content analysis) and writing research proposal.

7322-8322. **Seminar in Quantitative Data Analysis. (3).** Preparation, analysis and interpretation of existing quantitative data; data processing, multivariate analysis, interpretation and writing results for research projects. **PREREQUISITE:** SOCI 6312, equivalent, or permission of instructor.

7325-8325. **Seminar in Qualitative Research Methods. (3).** Examination of qualitative social science research methods, particularly rationale behind these methods, how and when they are employed, and processes of analyzing field observations, oral histories and in-depth interviews.

7330-8330. **Seminar in Current Research Literature. (3).** A seminar dealing with current topics of interest in the field. Topics will vary in response to the interests of the students and specialties of the staff. (May be taken twice for three hours credit each time when topic varies.)

7410-8410. **Sociology of Women. (3).** Social definitions of gender and impact of these definitions on women's lives; women's responses to these conditions.

7411-8411. **Social Stratification. (3).** Theoretical analysis of how social class status and power shape social relations, determine life chances, and affect attitudes, opinions, and political choices of individuals and groups; processes that perpetuate systems of class, gender and race inequality, and degree of social mobility in societies.

7421-8421. **Racial and Social Inequality. (3).** (7810). Comparative study of racial, ethnic, and social minorities in the United States; historical and contemporary

experiences of groups such as African Americans, Latinos, Asian Americans, Native Americans, homosexuals, and political minorities, as well as current theories in American sociology used to interpret their experiences; how gender and class influence experience of oppression.

7442-8442. Sociology of Poverty. (3). Patterns of wealth and income inequality in contemporary society. Consequences of poverty for society and individuals in various institutional contexts. Critical evaluation of traditional theories of poverty and contemporary alternatives.

7450-8450. Seminar in Aging. Aging as sociological phenomenon through understanding and applying principles of gerontological analysis to contemporary topics in aging, including acquaintance with and use of computer accessible literature data base.

7511-8511. Theories of Deviance. (3). A seminar in the sociological approaches to the study of deviance and social disorganization with an emphasis on current sociological theory and research.

7512-8512. Sociological Analysis of Deviant Behaviors. (3). Examination of various categories of deviant behavior analyzed from the sociological perspective. Topics include pornography, prostitution, male homosexuality, lesbianism, other forms of sexual deviance, compulsive gambling, drug use, alcoholism and other relevant topics of current importance.

7528-8528. Juvenile Delinquency. (3). Historical background for the establishment of juvenile courts in the United States; theories of juvenile delinquency; methods of treating and preventing delinquency.

7631-8631. Urban Theory Seminar. (3). Competing theories and accompanying research findings on current issues in macro and micro urban theory; rise and fall of cities; effects of urbanism and urban form on individual and group behavior; how urban social groups (e.g., social classes, race/ethnic groups) manage their lives and their relations with others, and

how these groups mobilize in efforts to change or resist change.

7655-8655. Sociological Foundations of Community Studies. (3). Ecological, interaction, and social system perspectives for community analysis; contemporary applications of theories within context of American society; implications of current changes for community life and social stratification, leadership and power structure, social differentiation and integration, community development, and ideology.

7711-8711. Seminar in Comparative Sociology. (3). How and why countries experience different social change trajectories; theories and research on social, cultural, political, and economic differences among countries and regions of the world; importance of global/international processes in shaping these differences; class and state formation, revolution, emergence of democracy, effects of countries' roles in the world-system.

7721-8721. Seminar in Collective Behavior. (3). (6720). Emergence of collective behavior, spontaneous collectivities, social movements, social consequences of restrictive collective behavior.

7751-8751. Social Structure and Personality. (3). Research, theory relating social structure variables to processes of socialization, personality development, and conceptions of role and self.

7811-8811. Formal Organizations. (3). (7460). Competing theories of formal organizations and accompanying research findings on current issues of bureaucratization and centralization of modern social systems; close examination of power and functions of various large scale organizations, including economic, political, and educational institutions.

7820-8820. Seminar in Sociology of Education. (3). Schools and school life from sociological perspective; how societal objectives are translated into school policies and practices.

7830-8830. Seminar in the Family. (3). (7420). An advanced course in the study of the family which is

primarily concerned with research findings in the area of family disorganization, changes in family structure and function, parent-child interaction, working mothers, and problems of aging.

7832-8832. Work and Family. (3). Current research on work and family and broader sociological relationship between social structure and personal life; link between home and market work, impact of employment, underemployment, and poverty on family life, and contemporary policy implications.

7851-8851. Medical Sociology. (3). Social meaning of *disease*, with special emphasis on the cultural, organizational, and behavioral contexts of the occurrence and management of *disease*.

7852-8852. Sociology of Mental Illness. (3). Social meaning of *mental illness*, with special emphasis on the cultural, organizational, and behavioral contexts of the occurrence and management of *mental illness*.

7860-8860. Seminar in the Sociology of Religion. (3). A sociological examination of religious institutions; cultural and social factors associated with religious structure, religious values, religious behavior; secularization of culture and change of social structure; analysis of religious organizations, the religious leadership and religious movements.

7912-8912. Directed Individual Study. (1-4). Individually directed advanced reading and/or research in special areas of interest. NOTE: Course may be repeated for a maximum of 6 hours credit. PREREQUISITE: Permission of Coordinator of Graduate Studies.

†7996. Thesis. (1-6). Supervised research in preparation for advanced degree thesis. PREREQUISITE: The formal filing of a research proposal and outline of procedures acceptable to the student's graduate committee.

† Grades of S, U, or IP will be given.



THE FOGELMAN COLLEGE OF BUSINESS AND ECONOMICS

J. TAYLOR SIMS, Ph.D.,
Dean

DAVID H. CISCEL, Ph.D.,
Associate Dean for Graduate Programs

THE SCHOOL OF ACCOUNTANCY

CONSTANTINE KONSTANS, Ph.D., CPA
Director, School of Accountancy
Associate Dean, Fogelman College of Business and Economics

GRADUATE ACADEMIC PROGRAMS

School/Department	Major	Concentration Within Major	Degree Offered
School of Accountancy	Accounting	(1) Accounting (2) Taxation	Master of Science (M.S.)
Department of Economics	Economics		Master of Arts (M.A.)
Fogelman College of Business and Economics (Interdepartmental)	Business Administration	1. Finance, Insurance and Real Estate 2. Management 3. Management Information Systems 4. Marketing	Master of Science (M.S.)
		1. Accounting 2. Economics 3. Executive 4. Finance, Insurance and Real Estate 5. Law 6. Management 7. Management Information Systems 8. Management Science 9. Marketing	Master of Business Administration (M.B.A.)
		1. Accounting 2. Economics 3. Finance 4. Management 5. Management Information Systems and Decision Sciences 6. Marketing 7. Transportation and Logistics	Doctor of Philosophy (Ph.D.)

The Fogelman College of Business and Economics is one of the fastest growing centers of business study in the South. M.S.U. offers the business student advanced learning and a wealth of potential material for research and study. Memphis State maintains extensive facilities for business research, including the Bureau of Business and Economic Research, the Center for Manpower Studies, and the Public Sector Employee-Employer Relations Center, which aid the Memphis area businesses and governmental agencies in many ways through the collection, analysis, and interpretation of business data.

MASTER OF BUSINESS ADMINISTRATION AND MASTER OF SCIENCE DEGREES

The *Master of Business Administration* degree is specially designed for students who have a bachelor's degree from arts and sciences, engineering, law or other areas of study, as well as those who hold a bachelor's degree in Business Administration. A foundation is provided for continued growth in any business endeavor or activity. Students in the M.B.A. program may emphasize one of the

following areas of study: accountancy, economics, finance, management, management information systems, management science, or marketing. A joint M.B.A./J.D. program and an Executive M.B.A. program are also available.

Students with adequate preparation in business administration and economics may complete the program in a minimum of three semesters (one calendar year). A period of five semesters is normally required of students who have no undergraduate work in business. The graduate programs of the Fogelman College of Business and Economics are fully accredited by the American Assembly of Collegiate Schools of Business.

The *Master of Science* degree is available to students desiring a higher degree of specialization than is possible under the M.B.A. program. Students may obtain the M.S. degree in The School of Accountancy and in the area of business administration with a concentration in either finance, management, management information systems, or marketing. For requirements, see Core I following and the individual departments in this section.

Program Admission

Admission to the Master of Business Administration, Master of Arts (economics),

and Master of Science degree programs is granted to graduates of accredited colleges and universities who show high promise of success in graduate business study. The admission requirements include the following, all of which must be completed before admission and enrollment:

1. Graduation from an accredited college or institution.
2. An application for admission and the appropriate fee.
3. An official transcript from each college or university attended.
4. A satisfactory score on the GMAT. (Admission to the M.B.A. and M.S. programs in The Fogelman College of Business and Economics requires a total of 1050 points on the AACSB formula (GPA x 200) plus GMAT when GPA is based on the applicant's last two years of undergraduate school. When the GPA is computed on the applicant's total undergraduate GPA, the minimal acceptable score for acceptance is 1000. The minimum acceptable score on the GMAT is 430 regardless of the applicant's GPA.)
5. In order to be considered for admission, complete application credentials must be received in the Graduate Admissions Office prior to August 1 for the fall semester, December 1 for the spring semester, May 1



for the first summer term, and June 1 for the second summer term. Qualified candidates may enter the program at the beginning of any semester.

Arrangements for taking the GMAT can be made by writing to GMAT, Educational Testing Service, Princeton, New Jersey 08540. Packets are also available in the Graduate School Office at Memphis State University, and in the Director of Graduate Studies Office, Fogelman College of Business and Economics, Memphis State University.

The Graduate Non-Degree classification is for students who wish to enroll in graduate courses but who do not wish to pursue a graduate degree in The Fogelman College of Business and Economics. Graduate courses taken with this status may not be used toward a graduate degree in the College.

Program Prerequisites (M.B.A.)

Students who wish to pursue the Master of Business Administration degree must have completed or complete satisfactorily the proper background courses, including a Calculus course at the level of MATH 1312 or MATH 1321.

If the prospective graduate student does not have an undergraduate degree in business, but meets the entrance requirements for the graduate school given above, the student will complete the required common body of knowledge background courses with 27 credits of the ALTERNATE CORE I:

ALTERNATE CORE I	CREDITS
Financial Accounting (ACCT 7000)	3
Economic Theory (ECON 7010)	3
Statistical Methods in Business and Economics (ISDS 7020)	3
Management and Organization (MGMT 7030)	3

Business Environment and the Law (FIR 7040)	3
Information Systems for Management Decisions (ISDS 7050)	3
Marketing Management (MKTG 7060)	3
Financial Management I (FIR 7070)	3
Production Management (ISDS 7080)	3
TOTAL	27

Alternate Core I classes may not be used toward a graduate degree in the Fogelman College of Business and Economics.

Program Requirements (M.B.A.)

Each candidate for an M.B.A. degree must complete a minimum of 33 semester hours of course work and pass a written and/or oral examination. The 33 graduate credits comprising the M.B.A. programs (except Executive see following section) are distributed as follows:

Students are expected to finish the first five required courses before beginning the area of concentration. Part-time MBA students should take at least two courses (a 6 hour load) each semester of enrollment.

CORE II	CREDITS
Required Courses	
Business Applications of Economic Theory (ECON 7100)	3
Cases and Problems in Decision Making (ACCT 7110)*	3
Quantitative Methods for Business Decisions (ISDS 7120)	3
Seminar in Organizations (MGMT 7130)	3
Strategic Marketing (MKTG 7140)	3
Financial Management II (FIR 7150)	3

Seminar in Business Policy (MGMT 7160)**	3
And one 3 credit hour course in international business selected from ACCT 7170***, ECON 7170, FIR 7170, MKTG 7170, MGMT 7170	3
CORE II TOTAL	24

Area of Concentration: The areas of concentration are listed in the chart at the beginning of this section. Courses may be selected from one of these areas with the approval of the major adviser. 9

TOTAL 33

At least 27 of the 33 hours required must be in courses designated for graduate students only (7000 level or above) exclusive of Alternate Core I prerequisites.

*Candidates who have completed ACCT 3310, Cost Accounting, or the equivalent *must* substitute ACCT 7320, Seminar in Controllorship.

**To enroll in MGMT 7160, a student must have satisfactorily completed a minimum of 15 semester hours of Core II courses.

***MBA Students with a concentration in Accounting must take ACCT 7170

Students pursuing a concentration in accounting or information systems must take additional prerequisite coursework before beginning CORE II. See Department requirements.

Core I below lists the required undergraduate prerequisites. Students deficient in background courses must also remove any departmental deficiency requirements.

CORE I	CREDITS
Fundamentals of Accounting (ACCT 2010 and 2020)	6
Macroeconomics; Microeconomics (ECON 2110 and 2120)	6
Basic Marketing (MKTG 3010)	3
Business Finance (FIR 3410)	3
Business Statistics (ISDS 2710 and 2711)	6
The Legal, Social, and Political Environment of Business (FIR 3130)	3
Organization and Management (MGMT 3110)	3
Introduction to Management Information Systems with Computer Applications (ISDS 2750)	3
Production Management (ISDS 3510)	3
TOTAL	36

M.S. in Business Administration Program Requirements

Students who wish to pursue the Master of Science with a major in Business Administration and a concentration in Finance, Management, Management Information Systems or Marketing must have completed or complete satisfactorily the proper background courses. Core I lists the required undergraduate prerequisites.

Graduate students seeking the M.S. degree must also have completed an undergraduate course in Business Policy or include MGMT 7160, Seminar in Business Policy, in either their major or minor areas.

Each student in the M.S. degree program must complete three core courses:

	CREDITS
Research Methodology (MKTG 7213)	3
International Finance (FIR 7170)	3
Information Systems in Organizations (ISDS 7465)	3
TOTAL	9

For specific program requirements, see the appropriate department.

M.S. in Accounting Program Requirements

Students who wish to pursue the Master of Science in Accountancy must have successfully completed or complete the proper background courses. CORE 1 lists the required undergraduate prerequisites. See the School of Accountancy for addition prerequisites and program requirements.

Executive M.B.A. Program Requirements

The Executive M.B.A. concentration is open to those who have a bachelor's degree and who have had a minimum of five years experience in a managerial or professional position and who are nominated by their organization. Qualified applicants admitted for fall of each year, must meet the admission requirements of the M.B.A. program and are required to take the GMAT examination. Additional admission criteria are noted on the program application form. The program has been developed for middle and upper management personnel who desire to broaden and enrich their business skills.

The program is a 45 credit hour program which is to be completed in two academic years. All participants will take the same course of study and progress through the program together. In the latter part of August of both years, there will be a one week seminar which all participants must attend. During the academic year, classes will meet weekly on alternate Fridays and Saturdays.

The sequence of courses is as follows:

YEAR ONE	CREDITS
<i>Special Session (August)</i>	
MGMT 7030	
Management and Organization (Administrative Seminar I)	3
<i>Fall Term</i>	
MKTG 7060	
Marketing Management	3
ACCT 7000	
Financial Accounting	3
ISDS 7050	
Information Systems for Management Decisions	3

Spring Term

ISDS 7020	
Statistical Methods in Business and Economics	3
FIR 7070	
Financial Management I	3
ECON 7100	
Economic Theory	3

Summer Term

ISDS 7310	
Materials and Production Management	3
YEAR TWO	

Special Session (August)

MGMT 7130	
Seminar in Organizations	3

Fall Term

ECON 7110	
Managerial Economics	3
FIR 7040	
Business Environment and the Law	3
ACCT 7110	

Cases and Problems in Decision Making	3
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Spring Term

ISDS 7120	
Quantitative Methods for Business Decisions	3
MGMT 7160	
Seminar in Business Policy	3
International Business (ACCT 7170, ECON 7170, FIR 7170, MKTG 7170, or MGMT 7170)	3

TOTAL	45
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MASTER OF ARTS

The Department of Economics offers a graduate program leading to the Master of Arts degree. For program admissions, prerequisites, and degree requirements see the department in this section.

POST MASTERS DEGREE

Ph.D. in Business Administration

The Ph.D. in Business Administration at the Fogelman College of Business and Economics is designed to develop the research and teaching skills necessary to become an effective academic scholar in business administration.

The Ph.D. is an advanced degree in business administration. Students with professional degrees in business, public administration, law and engineering will find the MSU program a sound preparation for academic advancement.

MSU has the academic resources to provide the doctoral applicant with a balanced education that provides both the qualitative and quantitative skills required of the modern management education professional.

The Ph.D. student at the Fogelman College can select a concentration from one of seven areas of business administration: Accounting, Finance, Management, Management Information Systems and Decision Sciences, Marketing, Economics, and Transportation and Logistics.

The minor may also be selected from these fields or from fields as diverse as Tax Accounting, Educational Research, and Statistics.

Program Admission

Persons meeting the general requirements for admission to the Graduate School for doctoral level programs shall be eligible to apply for admission to the Ph.D. program.

Admission to the Ph.D. program may be granted to qualifying applicants who show high promise of success in doctoral business study. The principal criterion for admission is evidence of superior achievement in prior academic work, coupled with outstanding promise for future contributions as a business scholar. The admissions committee of the concentration department and the Associate Dean for Graduate programs will review and evaluate each applicant.

Criteria used for evaluation include the applicant's:

- (1) Academic record: Applicant's graduate grade point average on the master's level coursework should be 3.4 or higher (on a 4.0 basis).
- (2) Testing: Applicants will present a score on the Graduate Management Admission Test with a minimum score of 480.
- (3) Recommendations: Two letters of recommendation are required from former professors, colleagues, and/or business executives.
- (4) Personal Statement and Resume: Applicants will submit a written statement of career plans and objectives, and a current resume of academic and professional experiences.

(5) Mathematics: Applicants must submit a transcript indicating the successful completion of a course in calculus.

(6) Interview: Applicants will appear before the departmental admission committee for a personal interview.

Following admission, a student will be assigned to a departmental program committee composed of faculty members from the student's department of concentration. The program committee is responsible for planning and approving the program requirements, and for guiding and monitoring the progress of the student through the program.

Prerequisites

Students are usually admitted after completing a master's degree in business and economics. Prerequisites in the functional areas of business are determined by the departmental program committee of the student's area of concentration. A student who enters the Ph.D. program without a master's degree will initially be admitted at a graduate masters level.

Program Content

Research Core: (12 semester hours) includes courses designed to improve research skills. The courses in the Research Core will be designed by the student's departmental program committee from the doctoral level (8000) courses.

Concentration and Minor: (30 semester hours) may be selected from the following: Accountancy, Economics, Finance, Management, Management Information Systems and Decision Sciences, Marketing, or Transportation and Logistics. A minimum of 15 hours of 8000 level courses is required in the concentration. The minor (9 hours minimum) may be selected from the fields in the approved concentrations or from the several business related specialties inside and outside the Fogelman College. A minor must be approved by the student's department program committee.

Comprehensive Examinations: Each student will write comprehensive examinations in the concentration and in the minor field. Comprehensive examinations may not be taken before the final semester of prescribed coursework. These examinations should be taken at the next available test date following completion of doctoral coursework. After satisfactorily completing the written comprehensive examinations, each student must pass a general oral examination integrating all work. The student's program committee with participation from the minor field will organize and administer the oral examination. Comprehensive examinations are given each semester in the first three weeks of November, April, and July.

Dissertation: (18 semester hours) requires major research of an original and creative nature and must meet the requirements of the Graduate School. The dissertation is the research capstone of the Ph.D. program and must be significant contribution to the study of Business Administration. The student will register for dissertation credit hours every semester after passing the comprehensive examinations. After the dissertation is approved by the dissertation committee, the candidate will be given a final oral examination dealing primarily with the dissertation. The examination will be conducted by the dissertation committee. If the student's performance on this examination is satisfactory as judged by the committee, all requirements for the degree will have been completed.

Language Proficiency: A student is expected to demonstrate competence in either a foreign language or advanced computer proficiency before taking comprehensive examinations. Proficiency is determined by the department program committee.

Residency

A minimum of thirty (30) semester hours of doctoral course credits, exclusive of prerequisites, language, mathematical competency and dissertation, must be completed at Memphis State University. Students enrolled in the doctoral program must also meet the University residency

requirements as defined in the Admissions and Regulations section of this catalog.

FINANCIAL ASSISTANCE

A number of doctoral graduate assistantships are available to full-time graduate students. Graduate assistants in the doctoral program provide part-time assistance to the concentration department in teaching and research. In 1988-89, compensation ranged to \$8,500, including the granting of in-state tuition status for all graduate assistants. In addition, the Fogelman College has a limited number of fellowships, such as the Albert F. Wernet Scholarship in Finance.

SCHOOL OF ACCOUNTANCY

CONSTANTINE KONSTANS, Ph.D., CPA

*Director, School of Accountancy and Associate Dean,
Fogelman College of Business and Economics
Room 200, Fogelman Business
and Economics Building*

KENNETH R. AUSTIN, D.B.A., CPA

Administrator, Doctoral Program

KENNETH LAMBERT, Ph.D.

Administrator, Masters Program

I. In the School of Accountancy, qualified students may work toward the following degree programs: Master of Science with a major in Accounting, Master of Science with a concentration in Taxation, Master of Business Administration with a concentration in Accounting, or a Ph.D. in Business Administration with a concentration in Accounting.

The objectives of the School of Accountancy are: (1) to provide a comprehensive, state-of-the-art educational background, balanced as to conceptual *versus* pragmatic knowledge, that will prepare students in commerce and continue the development of their careers as professional accountants, financially oriented managers/advisors, and professors of accounting; (2) to promote both applied and theoretical research of high quality and of significance to the accounting discipline; and, (3) to provide leadership and support in the areas of expertise to other academic units, the profession, the business community, and the general public.

The objective of the Ph.D. in Business Administration with an Accounting concentration and minors in taxation and accounting information systems is to prepare a student for a career in accounting education and research. The Ph.D. program is research oriented, thereby permitting students to develop the necessary skills to do scholarly research within the existing "state-of-the-art" of the discipline. Specifically, the program is designed: (1) to provide candidates with an advanced level of knowledge across a broad spectrum of accounting topics as well as expertise in a chosen accounting specialization, (2) to prepare the candidate to conduct independent research and to effectively communicate research findings, and (3) to prepare the student for the various responsibilities of an academic career.

The Ph.D. program is a learning process in which the student obtains understanding of and the ability to do scholarly research. This process involves interaction among faculty and students in courses, in workshops, in teaching, and in individual research projects. The culmination of the process is the dissertation. The dissertation must be an original research project prepared by the student and defended before a committee of the faculty. This dissertation is expected

to be a basis for a student to begin his/her academic career. The project should be of substantial quality and lead to publications in scholarly journals.

Students are expected to be enrolled in the program on a full-time basis during their course work and one year during their dissertation stage. This commitment is expected to require three to four years of full time study. Course work should be completed within two to three years, depending upon a student's prior academic background.

The objective of the Master of Science in Accounting program is to provide candidates with greater breadth and depth in accounting education than is possible in the baccalaureate or Master of Business Administration programs in preparation for careers as professional accountants in financial institutions, government, industry, non-profit organizations, and public practice.

The objective of the Master of Science in Accounting with a concentration in accounting is to provide in-depth knowledge of accounting for those seeking careers in non-tax areas of accounting.

The objective of the Master of Science in Accounting with a concentration in Taxation is to provide in-depth knowledge of taxation for those seeking careers in that area.

The objective of the Master of Business Administration program with a concentration in accounting is to prepare candidates, who already have considerable undergraduate background in technical accounting subjects, for careers as managers and to provide them with basic conceptual knowledge of accounting and special insights into the nature, limitation, interpretations, and uses of financial information which serve as a foundation for accounting career development.

II. General Admission and Prerequisite Requirements

A. Program Admission

1. Satisfactory performance on the Graduate Management Admissions Test (GMAT) with acceptable scores on both verbal and quantitative portions.
2. Satisfactory undergraduate grade point average

B. General Prerequisites

1. Students must have general education courses which include the following:
 - a. English communication arts including writing, composition and oral expression.
 - b. Behavioral sciences and humanities such as psychology, anthropology and sociology.
 - c. Political and legal environment of business and society such as political science, public administration, and ethics.
 - d. Mathematics including probability theory and statistics.
2. Students must complete Core I prerequisites summarized at the beginning of the College section except that ACCT 2410 or 7002 may be substituted for ISDS 2750.
3. Successful completion of the following accounting courses or their equivalents:
 - a. ACCT 3110, 3120 (Intermediate Accounting I and II)
 - b. ACCT 3310 (Cost Accounting) or ACCT 7310 (Analytical Cost Accounting)
 - c. ACCT 3510 (Federal Income Tax I) or ACCT 7509 (Federal Income Tax of Individuals and Corporations)
 - d. ACCT 4020 (Accounting Systems) or ACCT 7002 (Accounting Systems and Microcomputers)
 - e. ACCT 4240/6240 (Auditing)

III. Specific Program Admission and Prerequisite Requirements

A. Ph.D. in Business Administration with Concentration in Accountancy

1. **Admission:** Students can be admitted to the Ph.D. program with a) Baccalaureate degree in Business or Economics, plus b) Masters degree in Accounting, or a Masters degree in Business Administration with a concentration in Accounting, or a Masters degree in Taxation preferably from an AACSB accredited program.



2. *Prerequisites:* The minimum prerequisites for the Ph.D. program are as follows:

- An undergraduate accounting core as defined by the School of Accountancy
- Proficiency in quantitative methods, and computer applications
- Graduate accounting courses which are at an advanced level. These courses must meet with the approval of the student's graduate committee.
- Other business and economics courses which support the student's development within the Ph.D. program.

While graduate courses can be substituted for undergraduate requirements, they will not be counted toward meeting the graduate accounting courses requirement. These courses must be approved by the student's graduate committee and the administrator of the Ph.D. program.

3. *Requirements:* In addition to the requirements of the College for the Ph.D. degree, the following are required for the concentration in accountancy: a minimum of 15 hours at the 8000 level which shall include ACCT 8610, 8620, 8710, 8720 and 8730.

Additional requirements and information are outlined in the school's *Policies and Procedures Manual*.

B. Master of Science in Accounting with Concentration in Accounting

ACCT 7020, Advanced Accounting Systems (3); 7120, Advanced Accounting Theory (3); 7240, Advanced Auditing (3); 7320, Seminar in Controllershship (3); accounting electives (9); collateral area approved by graduate advisor (12 hours which may include ACCT 6020, 6240, 7002, 7301, 7509). Total hours required: 33.

C. Master of Science in Accounting with Concentration in Taxation

1. *Prerequisite:* ACCT 4520/6520 Federal Income Tax II, or 7509, Federal Income Taxation of Individuals and Corporations.

2. *Requirements:* ACCT 7120, Advanced Accounting Theory (3); 7510, Tax Research (3); 7511, Tax of Partnerships (3); 7512, Tax of Corporations (3); 7514, Estates & Gift Taxation (3); 7519, Advanced Federal Income Taxation of Corporations and Shareholders (3). Tax accounting electives (6 hours selected from ACCT 7513, 7515, 7516, 7517, 7518 & 7520); accounting electives (any 3 hours of non-tax accounting courses except ACCT 7000, 7010, 7509, 7301 & 7002) and 6 hours of general electives. Total hours required: 33.

D. Master of Business Administration with Concentration in Accounting

7120, Advanced Accounting Theory (3); 7320, Seminar in Controllershship (3); accounting electives (any 6 hours of 7000 level accounting courses except ACCT 7000, 7010, 7509, 7301, 7002); and 7170, International Accounting. (3).

H510 ACCOUNTANCY (ACCT)

6020. **Accounting Systems.** (3). (6450). Accounting systems analysis and design emphasizing the accounting cycles approach. Manual and computer executed flowcharts; dataflow diagrams. Theory of systems control in an organizational setting. Techniques for developing well designed accounting systems in manual and computerized environments focusing on traditional file structures. On-site practicum with an actual company. PREREQUISITES: ACCT 2410, 3120, 3310.

6210. **Advanced Accounting.** (3). Partnerships, statement of affairs, receiver's accounts, statement of realization and liquidation, business combinations and consolidated financial statements, fund accounting, international accounting. PREREQUISITE: ACCT 3120.

6240. **Auditing.** (3). Ethics in accounting practices, internal control, auditing standards and procedures, programs of audit of various accounts, construction and indexing of various papers, reports to clients, a practice audit is carried out. PREREQUISITES: ACCT 6020.

6310. **Advanced Cost Accounting.** (3). (7310). Budgets, determination of standards, variances and their functions, cost reports, profit projecting, variable costing, gross profit and breakeven analysis, cost-profit-volume analysis, capital expenditure control, comparative cost analysis. PREREQUISITE: ACCT 3310.

6410. **Advanced Computer Applications in Accounting.** (3). Advanced techniques for use of computer application packages and programming in such areas as financial modeling, financial analysis, productivity, and presentation as well as other applications of current and anticipated interest and benefit to accounting profession. PREREQUISITES: ACCT 2410, 3120, 3310.

6520. **Federal Income Tax II.** (3). Laws and regulations for corporations, estates, and fiduciaries. Includes a project on tax research. PREREQUISITE: ACCT 3510.

6610. **Seminar in Accounting.** (3). Impact of SEC and other regulatory agencies on financial reporting; in-depth calculation of E.P.S.; update on taxes; conceptual framework project of FASB; inflation accounting; financial statement analysis. Current pronouncements of FASB and AICPA committees. PREREQUISITE: ACCT 3120.

7000. **Financial Accounting.** (3). (7001). Accelerated and in depth introduction to the conceptual foundations

of accounting. The subject is presented as a dynamic information system for measuring and communicating economic and financial data for planning and control purposes. Primarily for non-business students but is acceptable to remove accounting prerequisites for the M.B.A. and M.S. programs in the College of Business and Economics.

7002. **Accounting Systems and Microcomputers.** (3). Accelerated and indepth study of accounting systems design, control concepts and microcomputer applications. Not open to students who have completed an accounting systems course or a microcomputer course. PREREQUISITE: ACCT 2020 or 7000.

7020-8020. **Advanced Accounting Systems.** (3). Accounting systems analysis and design; emphasis on database information structures. Advanced system analysis tools; integrating accounting and computer controls; use of state-of-the-art database package leading to development of working accounting module. On-site practicum. PREREQUISITES: ACCT 2410, 6020, or 7002.

7021. **Multiuser Accounting Systems.** (3). Environment of multisuser accounting; audit trail and internal control considerations in centralized versus distributed accounting systems; design considerations of computerized accounting subsystems, including accounts receivable, accounts payable, payroll and general ledger. PREREQUISITES: ACCT 7020, ISDS 7060.

7022. **Accounting System Development.** (3). Development of working computerized accounting systems; overview of CASE Tools for accounting systems development; accounting file design, accounting user interface characteristics, accounting report generation considerations; complete development and programming of working accounting subsystem modules by student teams. PREREQUISITES: ACCT 7020, ISDS 7060.

7110. **Cases and Problems in Decision Making.** (3). (7010). Accounting analysis for decision making utilizing such managerial accounting tools as cost/benefit analysis, capital budgeting, variable (direct) costing, product costing and pricing, variance analysis and other decision-making techniques as well as case studies and/or research projects. PREREQUISITE: ACCT 2020 or 7000, or consent of director. Not open to students with more than 12 hours in accounting.

7120. **Advanced Accounting Theory.** (3). Broad aspects and objectives of accounting with emphasis on modern accounting trends, and contemporary controversial topics and the influence of professional accounting societies and regulatory agencies upon the accounting profession. Research related to changing concepts. PREREQUISITE: ACCT 6610 recommended.

7130-8130. **Development of Accounting Thought.** (3). (7710-8710). Readings of the outstanding writers from ancient times through the present. PREREQUISITE: permission of instructor.

7170-8170. **International Accounting.** (3). International accounting problems, including accounting by multinational corporations, foreign currency translation, institutional structures, financial control and reporting for international operations, comparative analysis of accounting principles and auditing standards of various countries. PREREQUISITE: ACCT 7000 or equivalent.

7240-8240. **Advanced Auditing.** (3). Statements on auditing standards, microcomputer use in auditing, auditing EDP systems, and statistical sampling in auditing. PREREQUISITE: ACCT 6240.

7301. **Analytical Cost Accounting.** (3). Cost accounting for students who have not had previous course in cost accounting; historical and standard cost systems; cost analysis using quantitative techniques and decision models. PREREQUISITE: ACCT 2010 or 7000 and 2410. Credit not allowed for this course and ACCT 3310 or 6310.

7320. **Seminar in Controllershship.** (3). Controllershship function; evolution of management accounting; conceptual framework of management accounting compared and contrasted with financial accounting; functional tools used by controllers; emphasis on research, written and oral communication skills in context of management accounting. PREREQUISITE: ACCT 3310 or 7301.

7321. **Management Advisory Services.** (3). Management advisory services and tools and techniques used in engagements; planning, preparing, and presenting

proposals, managing projects, and utilizing advisory services skills. Ethical considerations included.

7509. Federal Income Taxation of Individuals and Corporations. (3). Federal income taxation of individuals and corporations with limited coverage of partnerships, estates and fiduciaries for students without a previous course in taxation. PREREQUISITE: ACCT 2010 or 7000 and 2410. Credit not allowed for this course and ACCT 3510 or 6520.

7510-8510. Tax Research and Theory. (3). Advanced study of Federal taxation with emphasis on tax research methodology and various theoretical precepts; integration of basic tax knowledge with skillful tax research to accomplish desired ethical tax objectives. PREREQUISITE: ACCT 6520.

7511-8511. Federal Income Taxation of Partnerships and Partners. (3). Tax law organization, operation, and liquidation of partnerships. General overview of Subchapter K, acquisitions of partnership interests, basis of partner's partnership interest, taxation of partnership operations, transfers of partnership interests, partnership distributions, death or retirement of partner, adjustments to basis of partnership assets. PREREQUISITE: ACCT 7510 or permission of the instructor.

7512-8512. Federal Income Taxation of Corporations and Shareholders. (3). Tax law: organization, operation and liquidation of corporations. Organization of corporation under Code Section 351 and related problems; corporation's capital structure; corporate income tax; corporate elections under Subchapter S; stock redemptions and partial liquidations; and corporate reorganizations and liquidations. PREREQUISITE: ACCT 7510 or permission of the instructor.

7513-8513. Advanced Federal Taxation of Retirement Plans. (3). Various plans and qualification of requirements under the Employee Retirement Income Security Act of 1974 (ERISA). Emphasis on qualified pension, profit-sharing and stock bonus plans, retirement plans for self-employed individuals, individual retirement accounts (IRAs), nonqualified deferred compensation plans, restricted property plans, stock options, tax planning considerations. PREREQUISITES: ACCT 7510 or permission of the instructor.

7514-8514. Estate and Gift Taxation. Transfer taxes (gift tax, estate tax, generation-skipping transfer taxes; all taxes on transfer of property accumulated after imposition of income tax); federal gift and death taxes with emphasis on tax planning. PREREQUISITE: ACCT 7510 or permission of the instructor.

7515-8515. Tax Administration, Practice and Planning Considerations. (3). Introduction to overall organizational structure of Internal Revenue Service and operating procedures concerning individual rulings, additional issuances, the audit process, and its administrative powers. Rules governing tax practice including Treasury Department Circular 230. Strategies in seeking Administrative Rulings, the IRS audit, litigation considerations, penalties, statute of limitation of refund claims. PREREQUISITE: ACCT 7510 or permission of the instructor.

7516-8516. International Taxation. (3). Taxation of multinational businesses with special emphasis on U.S. based multinational corporations. Attention to various tax treaties between U.S. and other countries, such as Canada, Great Britain, Mexico. PREREQUISITE: ACCT 7510 or permission of the instructor.

7517-8517. State Taxation With Emphasis on Tennessee. (3). Review of state laws for Arkansas, Mississippi, and Tennessee with primary concentration on Tennessee tax statutes. State taxes with special emphasis on Tennessee inheritance and intangible taxes. PREREQUISITE: ACCT 7510 or permission of the instructor.

7518-8518. Selected Topics in Taxation. (3). Special tax considerations of individuals, partnership, corporations, estates, trusts, exempt organizations and governmental entities. PREREQUISITE: ACCT 7510 or permission of the instructor.

7519-8519. Advanced Federal Income Taxation of Corporations and Shareholders. (3). Concepts and principles related to federal income taxation of corporate reorganizations, corporate divisions, and taxation of affiliated corporations; tax consequences to corporate shareholder. Emphasis on code, regulations, court decisions, and research. PREREQUISITE: ACCT 7512.

7520-8520. Federal Income Taxation of Trusts & Estates. (3). Tax law as it relates to Subchapter J;

general overview of nature of trusts and estates during their existence and administration; taxable income of trusts and estates, taxation of beneficiaries, character of income, throwback rule, grantor trusts, tax planning considerations. PREREQUISITE: 7510 or permission of the instructor.

7820-8820. Expert Systems in Accounting. (3). Emulation of behavior of human experts in accounting to facilitate decision making. Techniques for search direction, construction, testing, validation and evaluation of expert systems and use of expert system shells. PREREQUISITE: ACCT 2410 or 7002.

7910. Problems in Accounting. (1-3). Directed independent reading and research projects in an area selected by the student with the approval of the staff member supervising. PREREQUISITE: Consent of the director.

†7996. **Thesis. (3-6).** Application for writing a thesis must be filled out on an approved form after consultation with the major professor and filed with the Dean of the Graduate School.

8000. Independent Accounting Research. (3). Research problem related to student's field of concentration under direction of a faculty member.

8320. Seminar in Management Accounting. (3). Background for management accounting research; quantitative aspects of management accounting; analytical and communication skills in decision making; mathematical modeling research in management accounting; alternative conceptual approaches to development of models to explain existence of observed management accounting techniques. PREREQUISITES: ACCT 7320 or equivalent and admission to doctoral program.

8610. Research Methods in Accounting. (3). Scientific method of research, different taxonomies and framework of research concepts; critiques of accounting research articles; formulation and execution of researchable topic which synthesizes knowledge gained through study of research topics.

8620. Normative Accounting Theory. (3). (8110). Descriptive and normative views of financial accounting theory; classical decision usefulness, information usefulness and events approaches; contemporary controversial topics including Conceptual Framework, Statements of Financial Accounting Concepts, lobbying, regulations and choice of financial accounting principles.

8710. Financial Accounting Research. (3). (8920). In-depth study of existing body of literature in various areas of empirical accounting research. Emphasis on research design and methodology. Design and development of individual research projects.

8720. Seminar in Accounting Research and Human Information Processing. (3). (8210). Current research on decision making and judgement behavior in accounting; theories, models, and empirical evidence about how accountants make professional judgements; selected readings from relevant source fields. Alternative methods for conducting empirical research.

8730. Managerial and Behavioral Accounting Theory and Research. (3). (8310). Theoretical framework of managerial and behavioral accounting related to decision making processes of management. Influence of behavioral science on budgeting techniques and managerial information and control systems. Behavioral accounting research.

†Grades of S, U, or IP will be given.

BUSINESS ADMINISTRATION

The courses listed below are designated with "BA" numbers in order that they may be available to advanced graduate students with a major in the Fogelman College of Business and Economics. They will be accepted toward the completion of the degree requirements.

H500 BUSINESS ADMINISTRATION (BA)

7900. Practicum in Research. (1-3). Designed to expose the student to actual problem-solving research activities in business and economics. Each student is assigned to a project that is either being conducted

currently be a faculty member or one that is developed under the supervision of a faculty member. Whenever possible the project will be within the student's major field of study. PREREQUISITE: Advanced graduate student.

8920. Dissertation Seminar. (3). Research design and methodology in administrative sciences. Allows the student to prepare a dissertation proposal, and provides guidance in that effort. Students are expected to present progress reports to other seminar members to critique the progress of fellow students and acquire skills and knowledge in the area of research design and methodologies. To be taken during the last 12 hours of doctoral coursework.

†9000. **Dissertation (1-12).** Independent research for Doctor of Business Administration degree. Application for writing a dissertation must be filled out on an approved form after consultation with the Doctoral Advisory Committee and filed with the Dean of Graduate Studies.

†Grades of S, U, or IP will be given.

ECONOMICS

DONALD B. WELLS, Ph.D. *Interim Chair*
Room 400 Fogelman Business
and Economics Building

K.K. FUNG, Ph.D., *Coordinator of*
Masters Program

CYRIL CHANG, Ph.D., *Coordinator of*
Doctoral Program

I. In the department of Economics, qualified students may work toward the M.A. degree with a major in Economics, the M.B.A. degree with a concentration in Economics, or the Ph.D. degree in Business Administration with a concentration in Economics.

II. M.A. Degree Program

A. Program Admission:

1. Satisfactory performance on the Graduate Record Examination (Satisfactory performance on the Graduate Management Admission Test may be acceptable with approval of the department chair.)

2. Satisfactory undergraduate grade point average.

B. Program Prerequisites:

Students should have successfully completed or complete ISDS 2710 and 2711, Business Statistics I and II; ECON 3310, Microeconomic Theory; ECON 3320, Macroeconomic Theory. (ISDS 7020 and ECON 7100 are acceptable substitutes).

C. Program Requirements:

1. Each candidate must complete a minimum of 33 semester hours of graduate course work, 30 hours if a thesis of 6 hours is written. The 33 hours must include a minimum of 21 hours (18 hours if a thesis is written) of approved course work in Economics. The remaining 12 hours, with approval of the department graduate adviser, may be taken in collateral courses.

2. At least 24 of the 33 (or 21 of 30 with a thesis) hours required must be in courses designated for graduate students (7000 level or above), exclusive of M.A. program prerequisite courses and M.B.A. Alternative Core I courses.

3. Of the 21 (18) hours of course work in economics, 9 hours must be devoted to three required courses: ECON 6810, ECON 7310, and ECON 7320.

4. A student who selects the comprehensive examination option must pass written examinations in microeconomic theory, macroeconomic theory, and applied economics. If the student does not pass all three exams, only those exams not passed need to be retaken. A maximum of three attempts within a year of the first attempt is permitted.

5. A student who selects the thesis option may submit a written masters thesis instead of taking comprehensive examinations. Students may earn up to six hours credit for writing a thesis (and registering for ECON 7996), but no more than three hours can apply to the 33 hours needed to graduate.

III. M.B.A. Program

See the beginning of this College section for admission, prerequisites and program requirements.

IV. Ph.D. Program

The objective of the Ph.D. in Business Administration with a concentration in Economics is to prepare candidates for a successful academic or professional career in economics and/or business. Through an intensive, advanced level training in both economic theory and quantitative methods, students learn to conduct independent research and prepare for various responsibilities of a professional career. A total of 42 semester hours of course work is required, with 21 hours in economics concentration beyond the Master's course work, 12 hours in research methods, and 9 hours in a minor field. The Economics Department has an outstanding faculty with a strong orientation in applied as well as theoretical research. For admission prerequisites and program requirements, see the beginning of this College section, or write to the chairman of the department.

H520 ECONOMICS (ECON)

6130. Government Regulation of Business. (3). The several approaches to legal and legislative control of business—especially tax laws, commission regulation, and anti-monopoly legislation—are considered in view of the impact of each on industrial operating policy and corporate social responsibility.

6740. Health Care Economics. (3). Topics include unique nature of health care as economic good, health care market and its participants including patients, physicians, and hospitals, and financing and delivery of personal health care in United States and other countries.

6810. Quantitative Economic Analysis. (3). Introduction to mathematical techniques used in economics, including algebra, matrices and determinants, differential and integral calculus, and use of micro-computer software.

6930. Economic Evaluation of Investment Projects. (3). Introduction to use of budgeting techniques and benefit/effectiveness analysis. Begins with introduction to alternative budgeting techniques used to allocate resources in private and public institutions. Pros and cons of quantitative approaches analyzed and problems of identifying and measuring benefits and costs discussed.

7010. Economic Theory. (3). Investigation of microeconomic and macroeconomic theory. Topics include: supply and demand, production and cost, competition and monopoly, income determination, unemployment, inflation, and government budget. PREREQUISITE: Fewer than six hours of undergraduate economics or permission of instructor.

7030-39. Special Topics in Economic Education. (3). Topics in economic analysis and policy, emphasizing techniques for gaining economic insights, communicating economic concepts and directing economic research at elementary, secondary, and post-secondary level.

7040. Economic Theory With Legal Applications. (3). Introduction to the tools of economic analysis; property rights; contracts; crime and enforcement; market imperfections and market intervention; labor, unions and employment practices; information and decision theory.

7100. Business Applications of Economic Theory. (3). (7020). Application of economic concepts to business enterprise. Emphasis on demand and supply analysis, efficient production and cost control, pricing and output decisions under alternative market types, income and employment determination, and impact of inflation and government on business firm. PREREQUISITE: ECON 7010 or equivalent or consent of instructor.

7110-8110. Managerial Economics. (3). Economic rationale underlying key management decisions. Managerial problems are identified and examined in the light of relevant economic concepts, and remedial action is plotted on the basis of economic logic. PREREQUISITES: ECON 7100 and 7171 or equivalent or consent of instructor.

7120. Economic Fluctuations and Forecasting. (3). The recent theory and history of the dynamics of economic activity, especially with reference to economic recessions and inflations, are surveyed and used

as a basis of the analysis of the several methods of economic forecasting. Examples of each are examined.

7130. Industrial Organization. (3). Historical analysis of the structure, conduct, and performance of the major industries with oligopolistic market structures. Review of antitrust policy, the economics of public utilities, and government promotion and regulation of competition. PREREQUISITE: ECON 7100 or equivalent or consent of instructor.

7170. International Trade and Investments. (3). Financial flows in international setting, problems related to international debt; international trade theory, policy, monetary systems, balance of payments, and adjustment mechanisms; trade and commercial policies. PREREQUISITE: ECON 7010 or consent of instructor.

7171. Business and Economic Research. (3). (7140). Basic research techniques and their application to business and economic problems. Attention to both primary-source and secondary-source study approaches. Critical evaluation of selected sample studies. PREREQUISITES: Statistics and College Algebra.

7210-8210. Labor Economics. (3). Use of theory and statistical techniques to analyze determination of wage rates and employment and working conditions in labor markets under conditions of competition and collective bargaining. PREREQUISITE: ECON 7100 or equivalent or consent of instructor.

7260-8260. Environmental Economic Policy. (3). Effectiveness of regulation, prohibition, zoning, subsidies, and effluent charges as methods of mitigating environmental decay. PREREQUISITE: ECON 7100.

7310-8310. Advanced Microeconomics I. (3). Neoclassical and non-neoclassical micro theories of economic behavior with applications. Advanced study of economics of firm and price theory, with emphasis on developing ability to apply tools of microeconomic theory to firm. Emphasis on methodological significance of alternative theoretical formulations and meaning and empirical interpretation of theoretical assumptions and conclusions. Topics include: demand and supply theory, identification of real-world demand and supply functions, profit maximization under both competitive and non-competitive conditions, production theory, and income distribution theory. PREREQUISITE: ECON 3310 or 7100.

7311-8311. Advanced Microeconomics II. (3). Neoclassical and modern treatments of demand and production theories, quality in cost and production relations, constrained utility maximization, consumer expenditure allocation over time and under uncertainty, welfare economics, decision theory, risk aversion, principal agent models, theory of games. PREREQUISITES: ECON 4810-6810 and ECON 7310-8310.

7312-8312. Economic Behavior and Institutions. (3). Models of real-world economic behavior and institutions commonly considered deviations from neoclassical micro- and macro-economics. Use of systems theory, catastrophe theory, and game theory. Focus on market failure, property failure, catastrophic discontinuity, transaction costs, information costs, type I and type II errors, institutional channeling of behavior, and strategic behavior. PREREQUISITE: ECON 3310 or 7100.

7313-8313. Economics of Risk and Uncertainty. (3). Behavior of firms and consumers taking risks; implications for market efficiency; role of information; formation of expectations; game theory and experimental methods in verifying conjectures. PREREQUISITES: ECON 4810-6810 and ECON 7100 or consent of instructor.

7320-8320. Advanced Macroeconomics I. (3). Theory of national income, prices, interest rates, wages and employment, including Neoclassical, Keynesian and Monetarist approaches; equilibrium analysis, stability, economic growth, foreign trade, use of policy. PREREQUISITES: ECON 3310 and ECON 3320, or ECON 7100.

7330-8330. History of Economic Thought. (3). In-depth analysis of great thinkers in development of economic theory and policy: Adam Smith, David Ricardo, John Stuart Mill, Karl Marx, Alfred Marshall, John Maynard Keynes and selected contemporary economists. PREREQUISITE: ECON 7100 or equivalent or consent of instructor.

7321-8321. Advanced Macroeconomics II. (3). Seminar emphasizing recent journal literature in macroeconomic theory; New Classical and Nonclas-

sical models and rational expectations, with implications for monetary and fiscal policy. PREREQUISITE: ECON 7320-8320.

7350-8350. International Monetary Theory and Policy. (3). Foreign exchange markets, international flows of capital, aggregate output and price in an open economy, economic development, instruments of macroeconomic policy under a variety of exchange rate systems. PREREQUISITES: ECON 4350 or ECON 7170, and ECON 3320 or ECON 7100.

7351-8351. U.S. Competitiveness in the World Economy. (3). Nature, causes and proposed remedies of America's declining international competitiveness, with focus on Japanese economic challenge; meaning and measurement of competitiveness; microeconomic and macroeconomic aspects; government policy; cultural dimensions. PREREQUISITES: ECON 4350 or ECON 7170, or consent of instructor.

7501. Urban and Regional Economics. (3). Analysis of spatial aspects of economic theory and particular problems of urban and regional economies. Topics include location theory, regional growth and trade patterns and economics of housing and poverty. PREREQUISITE: ECON 7100 or equivalent or consent of instructor.

7611. Monetary Theory and Policy. (3). Monetary theory with particular emphasis on the current controversies in the field and their implications for policy. Recent contributions carefully examined and evaluated. PREREQUISITE: ECON 3320 or equivalent.

7720. Seminar in the Economics of the Public Sector. (3). Emphasis on: the production of public goods; financing of public goods; and the problems created by a federal fiscal system. Current problems and policy decision. Public finance theory and policy will be analyzed.

7730-8730. Economics of Not-for-Profit Organizations. (3). Origins, logic and growth of not-for-profit organizations; entrepreneurship in this setting; rationale for exempting organizations from taxation; unfair competition; roles in market economies. PREREQUISITE: ECON 7100 or consent of instructor.

7740-8840. Applications of Health Care Economics. (3). Analysis of health care costs, employee health plans and third party reimbursement mechanisms; business and union strategies for health care. PREREQUISITES: ECON 6740 and 7100 or equivalent or consent of instructor.

7810-8810. Econometrics. (3). Use of quantitative and statistical techniques in estimation and testing of economic theories. Emphasis on use of microcomputer regression software. PREREQUISITE: ECON 6810 and 7171 or equivalent or consent of instructor.

7910. Problems in Economics. (1-6). Directed independent reading and research in an area selected by the student with the approval of the staff member supervising. PREREQUISITE: Consent of the Department Chair.

7930. Seminar in Economics. (3). A general problem area, current in economics, is selected. Individual studies in this area are then pursued with group analysis, discussion, and evaluation at regular meetings. Emphasis is on research technique. PREREQUISITE: Consent of the instructor. May be repeated for credit.

7940-8940-49. Special Topics in Economics. (3). Special areas of economics not otherwise included in the curriculum. Consult *Schedule of Classes*.

†7996. Thesis. (3-6). Application for writing a thesis must be filled out on an approved form after consultation with the major professor, and filed with the Dean of Graduate Studies. Independent research for the master's degree.

8121. Seminar in Economics Forecasting. (3). After careful examination of the literature of general and regional forecasting, the student is required to prepare several comprehensive, specific forecasts. These are presented to and defended before the class. PREREQUISITE: ECON 7120.

8541. Business Research Design and Procedures. (3). Formulation and testing of research topics in the areas of business and economics. PREREQUISITE: ISDS 7020 and ECON 4111 or equivalent.

8722-23. Problems Seminar in Economics of the Public Sector. (3). Through readings, research, and discussion, the student will analyze the economic implications of public fiscal, monetary or labor policy

on the national economy and specifically on the private sector. The political-economic decision-making process will be studied utilizing the appropriate economic analytical tools. PREREQUISITE: ECON 3310 and ECON 3320.

8722. Problems Seminar in Economics of the Public Sector: Fiscal Policy. (3).

8723. Problems Seminar in Economics of the Public Sector: Monetary Policy. (3).

8931-32. Problems Seminar in Economic Issues. (3). Problems in applied economics centering on one critical issue in a business economy. *Industrial Organization*: an historical analysis of the structure, conduct and performance of corporations in major U.S. industries. *Growth*: a consideration of economic models and variables involved in economic growth of a mature industrial society. *Regional and Urban*: regional social income accounting, industry base analysis and regional input/output studies are examined. PREREQUISITE: Admittance to the program.

8931. Problems Seminar in Economic Issues: Industrial Organization. (3).

8932. Problems Seminar in Economic Issues: Growth. (3).

† Grades of S, U, or IP will be given.

FINANCE, INSURANCE AND REAL ESTATE

MARS A. PERTL, Ph.D., *Chair*

*Room 402 Fogelman Business and
Economics Building*

L. S. SCRUGGS, Ph.D.

Coordinator of Graduate Studies

I. The Department of Finance, Insurance and Real Estate offers the Master of Science degree with a major in Business Administration and a concentration in Finance; the Master of Business Administration with a major in Business Administration and a concentration in Finance, Insurance and Real Estate; and the Ph.D. in Business Administration with a concentration in Finance.

II. M.S. Program

See the beginning of the College section for admission, prerequisite and program requirements.

1. Concentration in Finance, Insurance and Real Estate

a. Each candidate must complete a minimum of 33 semester hours of approved graduate courses. The 33 graduate credits include a minimum of 21 hours in the concentration (24 if a thesis is written.) The required core of courses in the Finance concentration include:

FIR 7150 — Financial Management II

FIR 7410 — Investment Theory and

Portfolio Management, and

FIR 7840 — Quantitative Applications for Finance

b. Three semester hours in a collateral area approved by the student's adviser. This will include MGMT 7160 (Seminar in Business Policy) if an integrating business policy course has not been successfully completed.

c. At least 24 of the 33 credit hours required must be in courses designated primarily for graduate students (7000 level or above).

d. Must pass a written and/or oral examination.

III. M.B.A. Program

See the beginning of this College section for admission, prerequisite and program requirements.

IV. Ph.D. Program

See the beginning of this College section for admission, prerequisites, and program requirements.

H530 FINANCE, INSURANCE AND REAL ESTATE (FIR)

6011. Estate Planning and Law of Taxation. (3). A survey course of the law of taxation as applied to the transmission of property by gift or death and its impact upon accumulations of wealth. Estate planning from an individual viewpoint designed to create,

maintain and distribute the maximum estate possible. PREREQUISITE: FIR 3011 or consent of the instructor.

6310. Real Estate Law. (3). This course covers law and legal instruments as applied to real estate. It is designed to serve the needs of property owners and those engaged in the real estate business. PREREQUISITE: FIR 3310.

6330. Determinants in Housing Finance. (3). Consideration of determinants of private and public demand for housing; the relations between construction and economic trends; new town legislation, urban renewal and development, improving environment and housing for low income groups, criteria for assessing public policy, policy implementation; the role of private enterprise in developing, maintaining and improving housing.

6340. Real Estate Appraisal. (3). Basic terminology, principles, procedures, and issues; nature of value, principles of value, appraisal process, market approach, cost approach, capitalization of income approach, gross rent multiplier approach, and appraisal reports.

6610. Cases in Managerial Finance. (3). Application of tools and principles introduced in previous courses to develop up-to-date problem solving techniques. Cases approached from standpoint of top level management, utilizing both quantitative and qualitative analysis. PREREQUISITE: FIR 7070 or equivalent.

6720. Operations and Management of Financial Institutions. (3). Financial policies and decision-making peculiar to financial institutions in the United States. Management of institutions consistent with adequate standards of liquidity and solvency. PREREQUISITES: FIR 3410 and FIR 3720.

6810. Property and Liability Insurance (3). Forms and functions of fire, marine, automobile, general liability, and other types of property and liability insurance. Emphasis on business and industrial applications. PREREQUISITE: FIR 3810 or consent of instructor.

6820. Life and Health Insurance. (3). Functions of life and health insurance. Emphasis on economic security needs, human behavior, and problems related to death and dying. Individual life, health, and annuity contracts and social insurance. Concepts in risk selection and regulation. PREREQUISITE: FIR 3810 or consent of instructor.

6840. Multiple Line Insurance Company Operations. (3). Company and industry functions other than contracts, including rating, rate-making, reserves, auditing, underwriting, reinsurance, claims production engineering, and governmental supervision. PREREQUISITE: FIR 3810.

6860. Employee Benefit Programs. (3). Analysis of life, health, and pension benefit programs from viewpoint of benefit planner. Topics include reasons for providing such programs, alternate methods for providing benefits, and broadly designing specifications for benefits.

7040. Business Environment and The Law. (3). (7011). Legal procedure and the law of contract, sales, negotiable instruments, creditor's rights, agency, business organizations and property will be considered. Business environmental aspects of court decisions and administrative agencies respecting the regulation of business, taxation, antitrust law, labor law, consumer and environmental protection laws.

7070. Financial Management I. (3). (7010). Discounting, risk measurement, valuation, capital budgeting, cost of capital, capital structure, dividend policy, working capital, financial instruments, and markets. PREREQUISITE: ACCT 7000 or equivalent.

7150. Financial Management II. (3). (7610). Analytical tools, concepts and decision rules for acquisition and allocation of funds by the business firm. Topics include: capital budgeting under risk, capital rationing, cost of capital, capital structure, dividend policy, and working capital management. Cases and readings may be required. PREREQUISITE: FIR 3410 or FIR 7070.

7170. Current Topics in International Finance. (3). (7620). Selected problems in international finance, foreign investment and the international payments system; gold movements; foreign central banking and international aspects of money markets; the impact of international financial cooperation. PREREQUISITES: FIR 3410; ECON 3610; or consent of instructor.

7301. Seminar in Real Estate Finance, Investments and Valuation. (3). An investigation of significant

current topics in real estate finance, investments and valuation, individual research and group discussion of recent developments in theory and practice. PREREQUISITE: Consent of the instructor.

7302. The Decision Process in the Development of Commercial and Industrial Real Estate. (3). Analysis of methodologies and market strategies in the evaluation of investments in commercial and industrial land development. To identify, conceptualize and to execute action programs associated with developing successful real estate projects, industrial parks, warehouse-distribution centers, and related land uses. PREREQUISITES: Core I MBA courses or their equivalent; FIR 7301 or approval of instructor.

7320. Financing Real Estate Transactions. (3). Economic, institutional and legal issues associated with real estate finance; Emphasis on investor and developer financing, and secondary mortgage market. PREREQUISITE: FIR 7070 or equivalent.

7350. Real Estate Investment Analysis. (3). Analytical tools, concepts and decision rules for real estate asset acquisition and disposition; ownership forms, tax structuring, cash flow forecasting, risk analysis and decision making. PREREQUISITE: FIR 7070 or equivalent.

7410. Investment Theory and Portfolio Management. (3). Introductory graduate level course in the area of investments and portfolio management. Considers qualitative and quantitative risk and return characteristics of various investment opportunities, fundamental valuation models, timing techniques, efficient markets, speculation and hedging, and portfolio theory and practice. PREREQUISITE: FIR 7070 or equivalent.

7710-8710. Seminar in Investment Theory. (3). Current literature in investment theory and portfolio analysis. Topics include statistical techniques of analysis, technical analysis, fundamental analysis, investor perceptions, efficient markets, investigation of risk measurements, portfolio theory and applications, and speculative markets. PREREQUISITE: FIR 7410 or consent of instructor.

7720. Current Topics in — (3). An in-depth investigation of selected current topics in Finance and related areas. Topic areas change each semester as determined by relevant developments in Finance. The course may be repeated once with a change in content. The student should consult the *Schedule of Classes* to determine the current topic. (Maximum 6 hours credit.) PREREQUISITE: Consent of instructor.

001. SPECULATIVE MARKETS

002. WORKING CAPITAL MANAGEMENT

003. FINANCIAL INSTITUTIONS

7810-8810. Advanced Financial Management. (3). The most significant contributions to the advanced literature on managerial finance. Topics include capital budgeting under risk, capital rationing, cost of capital, capital structure, dividend policy, firm valuation, and working capital management.

7840-8840. Quantitative Applications for Finance. (3). Application of statistical and quantitative tools to problem solving and decision-making in all finance disciplines; spreadsheet analysis, linear programming, and regression analysis; extensive use of personal and mainframe computer software packages. PREREQUISITE: FIR 7150, ISDS 7120 or equivalent.

7910-8910. Problems in Finance, Insurance, and Real Estate. (2-4). Directed independent reading and research projects in the finance, insurance, or real estate areas selected by the student with approval of the staff member supervising.

† **7996. Thesis. (1-6).** Candidates desiring to write a thesis must fill out an application on the approved form after consulting with the major professor. The application must be filed with the Dean of Graduate Studies.

8820. Theory and Practice of Financial Management. (3). Study of the more recent advanced literature of managerial finance and its applications. Intensive pursuit of approved individual topics. Oral presentations of research papers and cases. PREREQUISITE: FIR 8810.

8830. Capital Markets and Institutions. (3). Application of the theory of finance to the analysis of existing financial markets and institutions. Emphasis on the structure of the market for corporate capital instruments and the effect of capital market movements on financial decisions.

8850. Seminar in Finance. (3). Emphasis on current issues in private sector finance. Designed to encourage students in finance to develop a firm understanding of the important theoretical and empirical contributions to the literature. Course will draw on readings and the research projects of individual students.

† Grades of S, U, or IP will be given.

MANAGEMENT

THOMAS R. MILLER, Ph.D., *Chair*

*Room 202, Fogelman Business
and Economics Building*

COY A. JONES, Ph.D., *Coordinator
of Graduate Studies*

I. In the Department of Management, qualified students may work toward the Master of Science degree with a major in Management, the Master of Business Administration with a major in Business Administration and concentration in Management, or the Ph.D. in Business Administration with a concentration in Management.

II. M.S. Degree with Concentration in Management

A. Program Admission:

1. Satisfactory performance on the Graduate Management Admission Test (GMAT)
2. Satisfactory undergraduate grade point average

B. Program Prerequisites:

Core I prerequisites are summarized at the beginning of this College section.

C. Program Requirements:

1. Each candidate must complete a minimum of 33 semester hours of approved graduate courses. The 33 graduate credits include a minimum of 21 hours in the concentration (24 if a thesis is written), including MGMT

7130. The required core courses in the Management concentration include:

- MGMT 7530 - Seminar in the Development of Management Thought,
- MGMT 7421 - Seminar in Organizational Behavior
- MGMT 7500 - Seminar in Strategic Management

2. Three semester hours in a collateral area approved by the student's adviser (nine if thesis is written).

3. The 33 credit hours required must be in courses designated for graduate students (7000 level or above).

4. Must pass a comprehensive examination.

III. M.B.A. Program

See the beginning of this College section for admission, prerequisite, and program requirements. The management concentration consists of 9 hours of Management courses approved by the student's adviser.

IV. Ph.D. Program

See the beginning of the College section for admission, prerequisite, and program requirements.

In addition to these requirements Ph.D. students are expected to develop a high level of skills in both research and teaching. Doctoral students are provided ample opportunity to develop these skills through class work, seminars, and assistantships.

H550 MANAGEMENT (MGMT)

6410. Office Management. (3). (ADOS 6410). Modern methods of office organization and management, including office systems and procedures, office layout and design, and ergonomic considerations.

6460. Word Processing Management. (3). (ADOS 6420). Emphasizes concepts and development of managerial techniques in word processing. Includes word processing systems and procedures, equipment selection, layout and design of word processing departments, dictation systems, and human aspects of word processing systems.

7030. Management and Organization. (3). (7000). Comprehensive analysis of concepts and applications required for effective performance of the manager's job

in organizations with varied environments. Management as a sub-function of the total organizational system interacting with objectives, planning and control, organizational design, and interpersonal relationships. Nature of operations management.

7130. Seminar in Organizations. (3). Micro and macro examination of factors affecting behavior within organizations; motivation, leadership, group dynamics, organizational design and development, and conflict management; consideration of behavior, structure and processes of organizations. PREREQUISITE: MGMT 7030.

7160. Seminar in Business Policy. (3). (7410). The development of the top management viewpoint, the basic objective being to develop executive abilities and creative thinking. Selected problem areas of modern business will be explored. Alternative courses of action appraised, and decision-making ability developed. PREREQUISITE: 15 semester hours of CORE II courses.

7173-8173 Executive Communications (ADOS 7173-8173). (3). Theory of communication essential to management with written, oral, and interpersonal applications; use of case problems to develop effective, efficient, and ethical communication strategies; impact of communication technology; intercultural communication; collection, analysis, and organization of primary and secondary data, followed by written and oral presentations.

7170. International Management. (3). Foreign operations of American firms, impact of foreign competition on the domestic market, and management of multinational enterprises; identification, analysis, and resolution of managerial issues in multinational business operations. PREREQUISITE: MGMT 7030.

7210-8210. Seminar in Industrial Relations. (3). An in-depth examination of selected problems in labor management relations. Emphasis on an understanding of past practices as well as current trends which relate to present day activities in industrial relations. PREREQUISITE: MGMT 7030.

7220-8220. Seminar in Human Resources Administration. (3). Problems and issues deriving from movements and trends in the management of human resources caused by changing laws, union activities, and the demands of our culture. The student is required to select one or more recent concepts or problems for intensive study and critical analysis. PREREQUISITE: MGMT 7030.

7230-8230. Collective Bargaining and Labor Arbitration. (3). Advanced analysis of labor law and collective bargaining theory on which labor arbitration is based. Legal status and strategy and tactics of labor arbitration. PREREQUISITE: MGMT 7030.

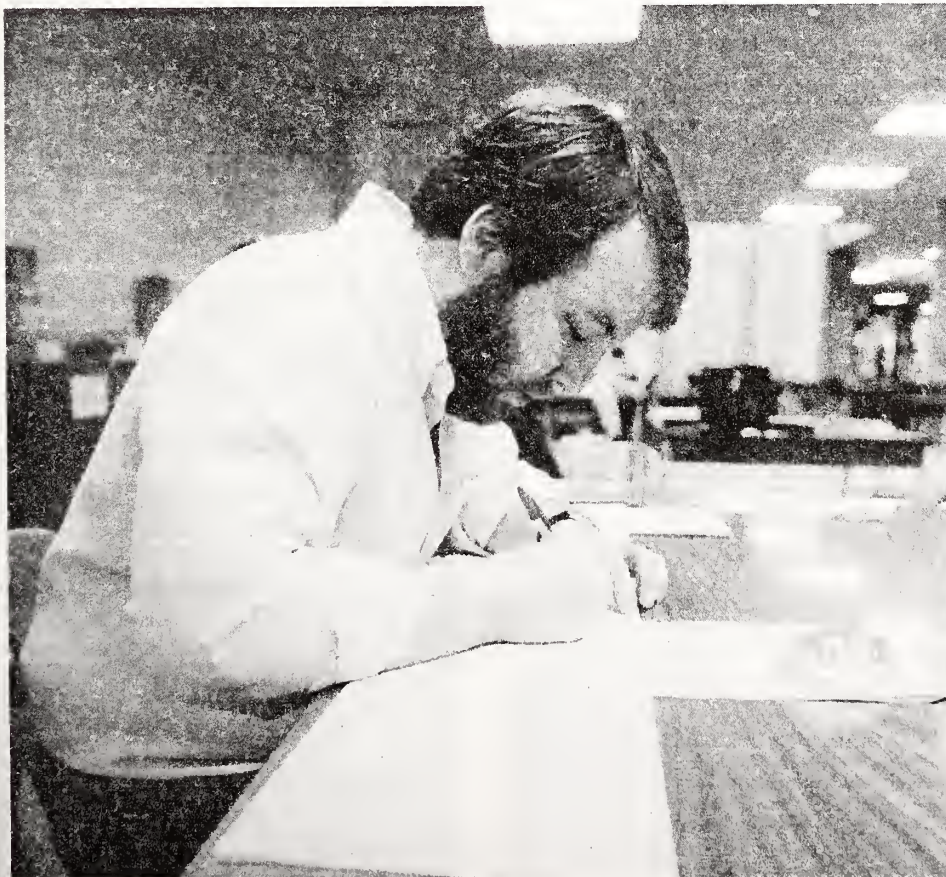
7240-8240. Seminar in Human Resource Planning and Career Management. (3). Issues in planning continual supply, utilization, maintenance, and outplacement of employees; forecasting methods and models, needs assessment, and career stages and transitions. PREREQUISITE: MGMT 7220.

7250-8250. Seminar in Selection and Performance Appraisal. (3). Processes of qualifying and selecting from applicant pool and process of evaluating performance; selection tools, evaluation techniques, statistical analysis, legal issues and performance review. PREREQUISITE: MGMT 7220.

7260-8260. Seminar in Job Design and Compensation. (3). Concepts and issues involved in design and compensation of jobs; examination of job analysis process which creates foundation on which both job design and pay are based; equity in pay structures and job requirements and methods of job evaluation. PREREQUISITE: MGMT 7220.

7421-8421. Seminar in Organizational Behavior. (3). Individual and group behavior within work organizations. Emphasis is placed on the study of behavioral science concepts and research and their applications to the management of organizations. Individual studies will be pursued with group analysis and discussion at regular class meetings. PREREQUISITE: MGMT 7030.

7422-8422. Seminar in Organizational Theory. (3). Major historical and contemporary theories of organization. Emphasis on the study of organizational structures, principles, techniques, and processes as they relate to the management of organizations. Individual studies will be pursued with group analysis and discussion at regular class meetings. PREREQUISITE: MGMT 7030.



7423-8423. Seminar in Motivation and Leadership. (3). Research relating to various theories of worker motivation and work group leadership; expectancy theory, goal setting theory, social comparison theory and social learning theory; include path-goal theory, the vertical dyad linkage model, substitutes, and self-leadership. **PREREQUISITE:** MGMT 7421.

7428-8428. Seminar in Interpersonal and Group Dynamics. (3). Interpersonal and group interactions in larger organizational systems; dynamics of group development and change, group composition, structure, leadership, group maintenance behaviors, problem solving, individual member characteristics, and effects of broader organizational and environmental systems. **PREREQUISITE:** MGMT 7421.

7500-8500. Seminar in Strategic Management. (3). Literature of strategic management; contributions of other fields to strategic management included. **PREREQUISITE:** MGMT 7030.

7502-8502. Seminar in Entrepreneurship. (3). Development and implementation procedures and techniques for initiating an enterprise; psychological and sociological ramifications associated with entrepreneurship literature; class discussions based on required readings, guest lectures, and case studies present a theoretical as well as a practical basis for venture initiation and for growth and development of existing enterprises. **PREREQUISITE:** MGMT 7160.

7504-8504. Seminar in International Business Strategy. (3). Nature and economic role of multinational corporation including impact of legal, political, educational, sociological, and cultural variables upon performance and managerial activity of multinational firm. **PREREQUISITE:** MGMT 7160.

7506-8506. Seminar in Industry and Competitive Analysis. (3). Competitive environment of business organizations; emphasis on understanding industry structure and the positioning of firms in relation to major rivals. **PREREQUISITE:** MGMT 7160.

7510-8510. Seminar in Strategy and Planning Research. (3). Specialized areas in strategic management review of relevant literature, and methodology determined; emphasis on problem determination and analysis and preparation of comprehensive reports and research proposals. **PREREQUISITES:** MGMT 7160, 7500.

7520-8520. Seminar in Organizational Change and Development. (3). Diagnosis of problems reducing organizational effectiveness and the techniques for introducing and implementing change in organizations. The theoretical basis of organizational development and the rationale for organizational development. **PREREQUISITE:** MGMT 7030.

7530-8530. Seminar in the Development of Management Thought. (3). Historical evolution of management thought designed to enable students to acquire a mastery of the literature in the field. Emphasis on the work of pioneers and major contributions to the development of the discipline of management. **PREREQUISITE:** MGMT 7030.

7910-8910. Problems in Management. (1-6). Directed independent research projects in an area selected by the student with approval of the staff member supervising. **PREREQUISITE:** Consent of department chair.

7921-8921. Seminar in Management Research. (3). Some of the statistical techniques available to the business researcher. Topics include: contingency tables, bivariate correlation analysis, regression analysis, ANOVA, discriminant analysis, and factor analysis. Use of computerized statistical packages and interpretation of the results of these packages. **PREREQUISITE:** ISDS 2711 or 7020 or equivalent.

†7996. Thesis. (3-6). Application for writing a thesis must be filled out on an approved form after consultation with the major professor and filed with the Dean of Graduate Studies.

8610. Seminar in Administrative Theory and Practice. (3). Critical appraisal of current theories in administration. Responsibilities, roles, values, and underlying assumptions involved in administration; the interaction of administrators, organizations and environments, and the process involved in adminis-

tering complex organizational systems with multiple goals and programs in varied environments.

H554 BUSINESS EDUCATION (BUED)

7000-8000. Analysis of Research in Business Education. (3). Research techniques and findings as exhibited in representative investigations in business education. Emphasis on reading and interpreting research, research findings as implications for solving educational problems, and recognizing potential topics for needed future research. **PREREQUISITES:** EDRS 7521 and 7541.

7010-8010. Issues and Trends in Business Education. (3). Issues and trends in education that pertain to business as well as those issues and trends that are inherent in business education itself.

7030-8030. Curriculum Construction in Business Education. (3). Principles of curriculum construction applied to business education curriculum, including Federal, state, and local forces that influence business education curriculum. Includes: basic concepts, criteria to be considered in curriculum construction, method of conducting a curriculum study, and ongoing process of evaluating curriculum in business education. **PREREQUISITE:** CIED 7002 Fundamentals of Curriculum Development.

7620-8620. Organization and Supervision of Vocational Business Education. (3). Office occupations programs with special emphasis on types of curriculums, production laboratories, and cooperative programs. Classroom supervision, physical layout, administration of programs, and utilization of block time.

7640-8640. Improvement of Instruction in Bookkeeping and General Business Subjects. (2). A critical evaluation of content, visual aids, methods, and testing in bookkeeping and general business subjects.

7655-8655. Materials and Methods in Vocational Education. (3). Instructional media and aids relating to vocational office education with emphasis on recent developments and research. Particular emphasis is placed on individual instruction techniques for the block-time approach to office education programs.

7660-8660. Tests and Measurements in Business and Office Education. (3). Standardized and published tests in business education, new trends in testing, application of sound testing theory and techniques to business education with special emphasis on evaluation of skill development, the establishment of realistic office competencies, and the evolution of grading standards.

7670-8670. Seminar in Business Education. (3). Methods and techniques of evaluating significant research studies and other current business education and related literature. Evaluation of progress achieved in conclusion of such literature to guide practical school use.

7720-8720. Guidance in Business and Office Education. (3). History, principles, and philosophy of guidance in business education; relationships of business teacher to school guidance services; special attention directed to the development, scope, and responsibilities for vocational guidance with respect to selection and retention of vocational students.

7910-8910. Problems in Business Education. (1-6). Directed independent research projects in area selected by student with approval of supervising faculty member. **PREREQUISITE:** Approval of supervisor and department chair.

H552 ADMINISTRATIVE OFFICE SYSTEMS (ADOS)

7420-8420. Problems in Office Management. (3). Problems in actuating office employees and controlling the work of the office. Topics: Motivating Office Personnel; Job Evaluation; Recruiting and Training Office Employees; Office Supervision; Standards and Standardization; Quantity and Quality Control; Improving Procedures; Simplification; Office Forms; Measuring and Timing Office Work; Office Manuals; Office Costs and Budgets.

† Grades of S, U, or IP will be given.

MANAGEMENT INFORMATION SYSTEMS & DECISION SCIENCES

LLOYD D. BROOKS, Ed.D., *Chair*

Room 300, Fogelman Business and Economics Building

RAVINDER NATH, Ph.D.

Coordinator of Graduate Studies

I. In the Department of Management Information Systems and Decision Sciences, qualified students may work toward the Master of Science in Business Administration with a concentration in Management Information Systems, the Master of Business Administration with a major in Business Administration and concentrations in Management Information Systems and Management Science, a Ph.D. with a major in Business Administration and a concentration in Management Information and Decision Sciences. The Department offers courses in Information Systems, Production Operations, and Quantitative Methods.

II. M.S. in Business Administration Degree with Concentration in Management Information Systems Program

A. Program Admission

1. Satisfactory performance on the Graduate Management Admissions Test (GMAT).
2. Satisfactory undergraduate grade point average.

B. Program Prerequisites

In addition to Core I prerequisites summarized at the beginning of this College section, students should have completed all necessary prerequisites for the advanced coursework.

C. Program Requirements

1. Each candidate must complete a minimum of 33 semester hours of approved graduate courses. The 33 graduate credits include a minimum of 21 hours in the concentration (24 if a thesis is written).
2. ISDS 7605, Business Database Systems; 7610, Systems Analysis and Design; 7615, Data Communications Systems and Networks; 7620, Decision Support Systems and Expert System; 7630, Information Systems Projects; and 7640, Information Systems Management and Planning are required for the major.
3. Three to six semester hours in a collateral area approved by the student's adviser. This will include MGMT 7160 (Seminar in Business Policy) if an integrating business policy course has not been successfully completed.
4. At least 24 of the 33 credit hours required must be in courses designed primarily for graduate students (7000 level or above).
5. Must pass written examination.

III. M.B.A. Program

See the beginning of this College section for admission, prerequisite, and program requirements.

IV. Ph.D. Program

See the beginning of this College section for admission, prerequisite, and program requirements.

H557 MANAGEMENT INFORMATION SYSTEMS & DECISION SCIENCES (ISDS)

6711. Intermediate Statistical Analysis. (3). An in-depth study of business decision making using advanced statistical concepts including additional probability distributions, use of samples and sample design, non-parametric methods, and advanced techniques of analysis through use of correlation analysis and analysis of variance. Computerized statistical programs will be utilized to solve complex problems. **PREREQUISITES:** ISDS 2711, 2750.

6780. Systems Design for Business Activities. (3). Emphasis will be given to computer systems design for typical business applications involving the automation of business activities. Estimates of computer requirements; organizational arrangement; planning the total system; flow-charting; conversion problems; cost

and performance evaluation. The objective is to simulate the middle level executive role in the transition and integration of business operations into computer oriented systems. PREREQUISITE: ISDS 3760.

6790. Management Information Systems. (3). A comprehensive view of the decision-maker's information requirements and the role of current information gathering means and methods. Problems and techniques concerning design and installation of responsive systems with special attention to executive use of system's products. Systems approach utilizing current planning and control models studied through current literature and texts in computer field. PREREQUISITE: ISDS 2750 and one college level mathematics course, or permission of the instructor.

7020. Statistical Methods in Business and Economics. (3). (MGMT 7011). Statistical concepts and methodology useful in understanding, assessing, and controlling operations of business and economic society. PREREQUISITE: 1312 or equivalent.

7050. Information Systems for Management Decisions. (3). Concepts of modern information systems; emphasis on integration of automated information processing within organizational structure and on computerized management tools for decision-making. PREREQUISITES: MATH 1211 or higher and consent of instructor.

7060. Program Development and File Structures. (3). Structured problem solving and development of structured programs using business programming language; internal and external data structures with emphasis on primary and secondary file structures. PREREQUISITE: ISDS 2750 or 7050.

7080. Principles of Production and Operations Management. (3). Role of P/OM function and relationship to other functional areas; basic production techniques and tools for both manufacturing and service operations. PREREQUISITE: ISDS 2711 or 7020.

7120. Quantitative Methods for Business Decisions. (3). (MGMT 7420). Applications of management science models for managerial control and research; concepts and techniques of research design integrated with linear programming, inventory, network and simulation models; computer solutions and managerial interpretation with regard to management science models, statistical techniques and information systems concepts. PREREQUISITES: ISDS 7020 and 7050 or equivalent.

7310-8310. Seminar in Production and Operations Management. (3). Problems and issues encountered in productions and operations management environment. Master planning, capacity management, resources planning, and shop floor management. Managerial decision making process for improving productivity and better utilization of scarce resources. Implementation problems and solutions. Manufacturing and service operations. PREREQUISITE: ISDS 3510 or equivalent or consent of instructor.

7311-8311. Seminar in Materials Planning and Management. (3). Traditional and modern theories and techniques of materials management. Organization for effective materials management systems. Requirements planning and resources planning. Design and implementation consideration, role of top management in materials planning and management. Functional interface problems and data base integrity. PREREQUISITE: ISDS 3510 or equivalent or consent of instructor.

7312-8312. Seminar in Manufacturing Resources Planning. (3). Multifunctional analysis of problems and issues encountered during planning of resources in manufacturing and service operations. Emphasis on role of computer and automation in control of scheduling, cash flows, labor capacity planning, inventory, distribution, and resource requirements. Systems-based. PREREQUISITE: ISDS 3510 or equivalent or consent of instructor.

7313-8313. Managing Global Production Operations. (3). Technical and business factors affecting global operations; emphasis on operation systems management, methods for decision making and ongoing challenges necessary to meet the needs of dynamic world market place. PREREQUISITE: ISDS 7310/8310 or consent of instructor.

7425-8425. Deterministic Models for Management Science. (3). Deterministic models concerned with optimal allocation of limited resources among compet-

ing activities. Business applications of linear programming including duality and post-optimality analysis as well as branch-and-bound and network flow methods of integer linear programming. PREREQUISITE: ISDS 7120 or equivalent.

7430-8430. Advanced Quantitative Topics for Business Decisions. (3). Advanced study of management decision-making using various quantitative methods of analysis. Specialized applications of specific foundation courses in management science. PREREQUISITE: ISDS 7425 or 7450 or 7431.

7431-8431. Probability Models for Management Science. (3). Discrete and continuous probability models such as the Binomial, multinomial, Poisson, Exponential, and Normal distributions. Emphasis on the validity of these models for management decision problems. PREREQUISITES: ISDS 4711 and MATH 2321.

7440-8440. Statistical Planning Techniques for Management Decision Making. (3). Techniques available to management for collecting and analyzing data for decision making. Various sampling techniques available for collecting and analyzing data; such as linear and non-linear time-series analysis with emphasis on how seasonal patterns affect individual firm. Two variable conditions (linear and non-linear) as well as multiple and partial correlation analysis. Computerized statistical planning packages studied in detail to demonstrate formulation of business problems for solution on computer. Interpretation and implementation of results of statistical computer packages for managerial decision making. PREREQUISITES: ISDS 3750, 4711, and MATH 1312 or 2321.

7450-8450. Simulation and Analysis of Business Systems. (3). Methods and techniques of digital computer simulation of business systems utilizing knowledge of data processing, statistics, probability and operations research. Areas of applications include inventory systems, production, scheduling, and various other traffic systems that experience waitingline problems. Topics include the methodology of construction computer simulation model, model validation and analysis of results, and a brief look at various simulation languages, such as GPSS and SIMSCRIPT. PREREQUISITES: ISDS 7120 and MATH 1312 or MATH 2321.

7460-8460. Business Applications of Decision Theory. (3). Bayesian decision analysis applied to strategic business decisions involving uncertainty. Topics include: prior analysis, posterior analysis, preposterior analysis, measuring subjective probabilities, and measuring preferences. PREREQUISITE: ISDS 7120.

7465-8465. Information Systems In Organizations. (3). Fundamental Concepts of systems and organizations; roles, types and applications of information systems (IS) in organizations; basic IS skills, techniques and methodologies. PREREQUISITE: ISDS 7050.

7605-8605. Business Database Systems. (3). Management of database for effective support of management information systems. Topics include characteristics and design of schemas and subschemas for hierarchical, network, and relational data models. PREREQUISITE: ISDS 7060 or consent of instructor.

7610-8610. Systems Analysis and Design. (3). Comprehensive structured approach to application system development process; emphasis on requirements analysis, logical specifications, structured design and implementation of information systems. PREREQUISITE: ISDS 7465, 7605 (corequisite).

7615-8615. Data Communications Systems and Networks. (3). Introduction to concepts and terminology of data communication, network design, and distributed information systems. Topics include equipment protocols and architectures, transmission alternatives, the communications environment, regulatory issues, and network pricing and management. PREREQUISITE: ISDS 7605 or consent of instructor.

7620-8620. Decision Support Systems and Expert Systems. (3). Application of information systems tools to problem solving and decision making; emphasis on developing and applying concepts and technologies of decision support systems and expert systems. PREREQUISITE: ISDS 7605, 7120.

7630. Information Systems Projects. (3). Development or evaluation or both of specialized software product; field studies to collect and analyze data

pertinent to significant information systems issues. PREREQUISITE: ISDS 7610.

7640-8640. Information Systems Management and Planning. (3). Information systems planning and management for the corporated executive and information systems manager. Emphasis on information as a critical resource and its role in policy and long range planning. PREREQUISITE: ISDS 7465 or consent of instructor.

7910-8910. Problems in Management Information Systems and Decision Sciences. (1-6). Directed independent research projects in an area selected by the student with approval of the staff member supervising. PREREQUISITE: Consent of department chair.

7921-8921. Seminar in Decision Sciences Research. (3). Some statistical techniques available to business researcher. Topics may include: contingency tables, bivariate correlation analysis, regression analysis, ANOVA, discriminant analysis, and factor analysis. Use of computerized statistical packages and interpretation of results of packages. PREREQUISITE: ISDS 2711 or 7020 or equivalent.

†**7996. Thesis. (3-6).** Application for writing a thesis must be filled out on an approved form after consultation with the major professor and filed with the Dean of Graduate Studies.

8470. Seminar in Management Science. (3). Advanced knowledge of management science techniques applied to the solution of modern business or administrative problems. Investigation of the research problems will also involve both written and oral reporting of the analysis and decisions concerning the application of management science methods. PREREQUISITE: ISDS 8430 and 8460.

8540. Multivariate Analysis for Business Research. (3). Multivariate techniques available to the business researcher. Use of computerized statistical packages and their interpretation. PREREQUISITE: ISDS 7020 or equivalent and a working knowledge of statistical packages SPSS and BMD.

8700. Studies in Information Systems. (3). In-depth study of selected topics in Management Information Systems: focus on new research frontiers; heavy research orientation. PREREQUISITE: Consent of Instructor.

8710. Research Seminar in Information Systems I. (3). Scientific methodology of MIS research; MIS frameworks and theory of MIS and organizations; critique and analyze foundational papers; in-depth study of researchable topics. PREREQUISITE: Consent of instructor.

8720. Research Seminar in Information Systems II. (3). Development of a research proposal; critique and evaluation related to research and the proposal. PREREQUISITE: ISDS 8710 or consent of instructor.

† Grades of S, U, or IP will be given.

MARKETING

ROBERT L. BERL, Ph.D., *Chair*

*Room 302, Fogelman Business
and Economics Building*

O. C. FERRELL, Ph.D., *Coordinator of
Doctoral Program*

GEORGE H. LUCAS, Ph.D., *Coordinator of
Master's Program*

I. In the Department of Marketing, qualified students may work toward the Master of Science degree in Business Administration, the Master of Business Administration with a major in Business Administration and a concentration in Marketing, or Ph.D. with a major in Business Administration and a concentration in Marketing or Transportation and Logistics.

II. M.S. Degree Program

A. See the beginning of this College Section for admission, prerequisite, and program requirements.

B. Concentration in Marketing

- a. Each candidate must complete a minimum of 33 semester hours of approved graduate courses. The 33 graduate credits include a minimum of 21 hours in the concentration (24 if a thesis is written).
- b. The following courses must be included in the core of the concentration:
MKTG 7140 - Strategic Marketing
MKTG 7213 - Research Methodology,
MKTG 7222 - Studies in Buyer Behavior
- c. Three semester hours in a collateral area approved by the student's adviser. This will include MGMT 7160 (Seminar in Business Policy) if an integrating business policy course has not been successfully completed.
- d. At least 24 of the 33 credit hours required must be in courses designated primarily for graduate students (7000 level or above).
- e. Must pass a written and/or oral examination.

III. M.B.A. Program

See the beginning of this College section for admission, prerequisite and program requirements.

IV. Ph.D. Program

See the beginning of this College section for admission, prerequisite and program requirements.

In addition to these requirements, the following are an integral part of the Ph.D. program with a concentration in Marketing or Transportation and Logistics.

1. *Foreign Language/Communication Skills:* Ph.D. students with a concentration in Marketing or Transportation and Logistics may select one of the following options to meet this requirement:

- a. Demonstrate proficiency in a computer programming language, or complete satisfactorily (a grade B or better) one of the following: COMP 6001 - Computer Programming, COMP 6002 - Accelerated Computer Programming, or other courses as approved.
- b. Demonstrate proficiency in a foreign language pertinent to the student's area of research interests.
- c. Students whose native language is other than English should demonstrate proficiency in English with evidence beyond the TOEFL scores.

2. *Teaching:* Developing teaching skills is a major component of the Ph.D. program. In the course of the program, doctoral students are provided with a balanced teaching and research assistantship. Student evaluations as well as faculty input (by observing doctoral students teach) are used to assess teaching skills. If teaching skills are found inadequate, the Ph.D. candidate will be advised an appropriate course of action.

3. *First Year Evaluation:* During the summer period following the first academic year, Marketing doctoral students are required to write a research paper. The purpose of this evaluation is to allow students to demonstrate their skills in conceptualizing a research question, determining an appropriate methodology, and communicating effectively in writing.

The doctoral program coordinator oversees the progress of students on this matter. The paper is due on or before July 15. Each paper is blind reviewed by selected faculty. The doctoral program coordinator provides the student with a comprehensive feedback on the project. Students who perform poorly on this evaluation will be asked to withdraw from the program. This feedback will be provided no later than August 15. Students are encouraged to start on this project during the Spring semester.

4. *GPA Requirement:* Marketing doctoral students are required to maintain a minimum of 3.50 GPA in the marketing courses.

H560 MARKETING (MKTG)

7060. Marketing Management. (3). (7001). For graduate students with undergraduate degrees in fields other than business administration. Marketing management as it relates to product, price, place, and promotional activities in both profit and nonprofit organizations; external environment as it affects marketing.

7140. Strategic Marketing. (3). (7012). Analytical approach to strategy formation as it relates to marketing management activities of business enterprise. Focus on development of strategic framework for decision-making for both domestic and global organizations. PREREQUISITE: MKTG 7060 or equivalent.

7170. Multinational Marketing Seminar. (3). Emphasis on the cross-cultural aspects of multinational marketing through case studies and individual research. The execution of marketing concepts and theories in different cultures and environments. Similarities and differences of applications and results. PREREQUISITE: MKTG 7060 or consent of department chair.

7213. Research Methodology. (3). (7015 and 7172). Nature and scope of research philosophy and methods in business. Primary and secondary research procedures. Emphasis on the preparation and presentation of independent research findings and on utilization of multi-variate analysis techniques. Required for Marketing concentration students in MBA program. PREREQUISITE: MKTG 7060 or equivalent.

7214. Marketing Information Systems Design. (3). (7014). Marketing information system from standpoint of its inputs, operation, control and outputs so that it can be revised as greater efficiency is required. Simulation and other techniques helpful in designing effective marketing information systems. PREREQUISITE: MKTG 7060 or equivalent.

7215-8215. Advanced Research Methodology I. (3). Analyses and critiques of nature of scientific thinking; philosophies of science and styles of scientific inquiry; emphasis on relationship between epistemological and methodological positions; nature of theory construction and measurement in marketing. Conducted at the Ph.D. level; qualified MBA students admitted with permission of department chair.

7216-8216. Advanced Research Methodology II. (3). Theoretical and methodological issues in research design, measurement, and method; development of measures of marketing constructs and empirical assessment of measurement properties; model development and testing to expand marketing theory; LISREL methodology to test measurement and structural models. Conducted at the Ph.D. level; qualified MBA students admitted with permission of department chair. PREREQUISITE: MKTG 7215-8215 and PSYC 8302 or equivalent.

7218. Health Care and Services Marketing. (3). (7018). Marketing aspects of health care industry; emphasis on marketing management, planning and decision-making dealing with health care services, its use of resources, and impact of environmental influences. Case studies used to illustrate application of decision-making skills. PREREQUISITE: MKTG 7060 or consent of department chair.

7220-8220. History of Marketing Institutions and Thought. (3). (7020-8020). Introduction to the concepts and theories advanced in the development of institutions, channels, functions, and processes in the field of marketing. Qualified MBA students permitted with the permission of department chair. PREREQUISITE: MKTG 7060 or consent of department chair.

7222. Studies in Buyer Behavior. (3). (7022). Analysis of the contributions of the behavioral science disciplines to consumer motivations, buying behavior, market adjustment, and product innovation. These processes evaluated with reference to psychological drives and other behavioral science concepts at each stage of distribution. PREREQUISITE: MKTG 7060 or consent of department chair.

7227-8227. Marketing Simulation and Models. (3). (7027-8027). The art and science of systems simulation applied to marketing activities. Emphasis on designing of a model, running experiments with it and analyzing results. Individual empirical research encouraged. Conducted at the Ph.D. level; qualified MBA students permitted with permission of department chair. PREREQUISITE: MKTG 7060 or consent of department chair.

7230-39-8230-39. Special Topics in Marketing. (3). (7030-8030). Special study of problems in marketing. Topics areas change each semester as determined by relevant developments in marketing. Course may be repeated once with a change in content. Current

topic listed in *Schedule of Classes*. PREREQUISITE: MKTG 7060 or consent of department chair.

7250. Advertising Management. (3). (7050). Theoretical and applied aspects of advertising management from perspective of advertiser rather than advertising agency. Advertising articles, cases, and a project. PREREQUISITE: MKTG 7060 or consent of department chair.

7270-8270. Strategic International Marketing. (3). Strategic decision-making in a global environment; strategic planning systems, including marketing information systems and analysis, leading to formulation of international marketing strategies. PREREQUISITE: MKTG 7170 or equivalent.

7910-8910. Problems in Marketing. (1-6). Directed independent research projects in an area selected by the student with the approval of the staff member supervising. PREREQUISITE: Consent of department chair which should be obtained at least one month before start of semester.

† **7996. Thesis. (3-6).** Application for writing a thesis must be filled out on an approved form after consultation with the major professor and filed with the Dean of the Graduate School.

8223. Advanced Consumer Behavior. (3). Survey of theoretic and methodological contributions of consumer behavior research in areas of human information processing, search for information, complex decision making, motivations, and attitudes; emphasis on tracing major research streams in the literature through examination of current journal articles; research paper required. PREREQUISITE: Consent of instructor.

† Grades of S, U, or IP will be given.

TRANSPORTATION AND DISTRIBUTION (MKTG)

7225-8225. (F). Management of Logistics Systems. (3). (7025-8025). Design and implementation of logistics systems within the business firms, including interaction among the various components of a logistics system such as inventory planning, order processing, location analysis, distribution center operations, transportation determination and scheduling, service levels, and distribution packaging. Highlights top management decision-making through case problems. PREREQUISITE: MKTG 7060 or consent of department chair.

7226-8226. National Transportation Policy. (3). (7026-8026). Current issues related to National Transportation policy. Emphasis on public policy alternatives and their impact on the transportation industry and infrastructure, transportation users and the general public. PREREQUISITE: MKTG 7060 or consent of department chair.

7228-8228. Analysis of Modal Operations and Problems. (3). (7028-8028) Investigation into workings of transportation enterprises. Discussions, case analyses, and individual projects. Both freight and passenger operations encompassing intercity and international movements. PREREQUISITE: MKTG 7060 or consent of department chair.

7229-8229. Seminar in Transportation. (3). (7031-8031). Focuses on managerial problems from standpoint of user of transportation and transportation firm. Attention to legal rights and responsibilities of carriers and users; other topics such as organization problems and pricing decisions. PREREQUISITE: MKTG 7060 or consent of department chair.

7260-69-8260-69. Special Topics in Transportation and Distribution. (3). (7040-8040). Problems in transportation and physical distribution. May be repeated with a change in content for a maximum of six hours. Topic listed in *Schedule of Classes*. PREREQUISITE: MKTG 7060 or consent of department chair.

7920-8920. Problems in Transportation and Distribution. (1-6). Directed independent research projects in an area selected by the student with the approval of the staff member supervising. PREREQUISITE: Consent of department chair which should be obtained at least one month before start of semester.

THE COLLEGE OF COMMUNICATION AND FINE ARTS

RICHARD R. RANTA, Ph.D.,
Dean

RAYMOND M. LYNCH, D.M.A.,
Director of Graduate Studies

GRADUATE ACADEMIC PROGRAMS

Department	Major	Concentration Within Major	Degree Offered
Art	Studio Art	(1) Painting (2) Sculpture (3) Printmaking (4) Graphic Design (5) Interior Design (6) Ceramics	Master of Fine Arts (M.F.A.)
	Art	Art History	Master of Arts (M.A.)
		Art Education	Master of Arts in Teaching (M.A.T.)
Journalism	Journalism	(1) General Journalism (2) Journalism Administration	Master of Arts (M.A.)
Music	Music	(1) Applied Music (2) Sacred Music (3) Music Theory (4) Music History (5) Orff-Schulwerk (6) Pedagogy (7) Music Education	Master of Music (M.Mu.)
		Musicology: Regional Studies	Master of Arts (M.A.)
		(1) Composition (2) Performance (3) Sacred Music (4) Music Education	Doctor of Musical Arts (D.M.A.)
		Musicology: Regional Studies	Doctor of Philosophy (Ph.D.)
Theatre and Communication Arts	Communication	(1) Communication Studies (2) Radio-TV-Film Production (3) Theatre	Master of Arts (M.A.)
	Theatre		Master of Fine Arts (M.F.A.)
Graduate School	Individual Studies	(by contract)	Master of Arts (M.A.) Master of Science (M.S.)

ART

CAROL CROWN, Ph.D., *Chair*

Room 201, Jones Hall

RICHARD H. KNOWLES, M.A.,
Coordinator of Graduate Studies

I. The Department of Art offers the Master of Arts degree with a major in Art and a concentration in Art History, the Master of Arts in Teaching with a major in Art and a concentration in Art Education, and the Master of Fine Arts with a major in Studio Art and concentrations in Painting, Sculpture, Printmaking, Graphic Design, Interior Design, and Ceramics. The Department of Art is a fully accredited institutional member of the National Association of Schools of Art and Design.

II. M.A. Degree Program

A. Program Admission

1. Admission to the Graduate School.

2. An undergraduate major in art history or its equivalent. If, after evaluation of student's transcript, the art history faculty perceives a deficiency in the major areas of Western Art, the student may be required to successfully complete undergraduate courses or examinations in appropriate areas.

B. Prerequisites for Admission to Degree Candidacy

The student shall apply for admission to degree candidacy upon the completion of 15 semester hours of graduate work. All candidacy requirements listed below must be satisfied before registering for more than 15 hours of coursework at the graduate level. To be approved for admission for candidacy, the student shall have:

1. A grade point average of at least 3.0 on a 4.0 scale.

2. Removed all departmental prerequisite requirements.

3. A planned degree program which meets all departmental and graduate school requirements.

4. The qualifying examination in art history shall be successfully completed and identified deficiencies removed. This test is an entry-level slide identification exam covering key monuments of Western art from ancient through modern times.

5. Knowledge of an appropriate foreign language must be demonstrated by the student. Generally speaking, advanced studies in art history require proficiency in at least one foreign language, depending upon the area of concentration selected by the student. Foreign language proficiency must be demonstrated by successfully passing an examination administered by the Department of Art; this examination should be taken during the first year of graduate study. This examination is set up so that each student is given a standard amount of time to translate in writing with the aid of a dictionary selected passages from scholarly articles in the student's field.

6. The student must establish an overall history of satisfactory ratings in periodic review, a semi-annual evaluation of each student's general level of achievement by all area graduate faculty. Forms are available for perusal in the Art Department Office.

C. Program Requirements

1. A total of 30 semester hours including the thesis.

2. The completion of 3 semester hours in ART 7130.

3. A minimum of 18 semester hours in art history (not including the required 3 semester hours in ART 7130 or any hours in ART 7996).

4. Twenty-one semester hours of 7000 level courses including no more than 3 credit hours for the thesis.

5. Up to 6 hours of elective credit outside the field of art history may be selected with the permission of the adviser.

6. The satisfactory completion of a comprehensive examination and an acceptable thesis, with presentation and defense.

III. M.A.T. Degree Program

A. Program Admission

1. Admission to the Graduate School.

2. Approval by the Art Education Area Graduate Committee of student's proposed program after evaluation of transcripts and, if requested, a portfolio.

3. Overall QPA of 2.5 for all undergraduate credit; QPA of 3.0 for undergraduate hours in Art or in upper division; minimum score on Miller Analogies Test of 41 or Graduate Record Examination Aptitude Phase score of 900.

B. Program Prerequisites

1. Undergraduate major in Art, Art Education or Art History or the equivalent in artistic experience and achievement as approved by Art Education area Graduate Committee.

C. Program Requirements and Tracks

1. Post-Art certification track; an option for those possessing Certification to teach Art.

a. Art Education Component (9-12 semester hours); Art 7460, 7470 and 7480 are required and Art 7400 may be elected.

b. Art Electives Component (15-18 semester hours); 6 to 15 hours in studio art plus 3 to 12 hours in Art History.

c. Education Component (9 semester hours from College of Education); EDRS 7521 and CIED 7002 are required plus one elective from EDFD or EDPS.

d. A track minimum of 36 semester hours.

2. Art as Additional Certification track: an option for those possessing non-Art Teaching certification and intending to add Art to their instructional endorsements.

a. All required and elective courses outlined in the Post-Art Certification Track plus CIED 7050 from the College of Education.

b. A track minimum total of 39 semester hours.

3. Initial Art Certification Track: an option for those not certified in any academic area and seeking an Art teaching certificate.

a. All courses required in the undergraduate Art endorsement program must be satisfied on the undergraduate or graduate level.

b. All required and elective courses outlined in the Additional Certification Track except the EDFD or EDPS elective. EDFD 7001, EDPS 7121 and 9 hours of student teaching are required in addition.

c. A track minimum total of 48 semester hours.

d. Students who have not had SPER 2000 will be required to complete this course or SPER 7000 in order to be eligible for certification.

e. The student must satisfy requirements in General Education for certification (see undergraduate catalog) and must have met, or will have met upon completion of the program, the undergraduate requirements or their graduate equivalents in the field of study in which the student is seeking certification.

Students seeking certification through the Master of Arts in Teaching program must refer to the undergraduate catalog for the requirements and procedures for admission to the Teacher Education Program and student teaching. They must confer with the Director of Certification concerning certification requirements. Students must make formal application for admission to the Teacher Education Program immediately upon entering the program. The deadlines for filing an application for student teaching are March 1 for Fall student teaching and October 15 for Spring student teaching.

4. Degree candidacy for all tracks

a. Application for admission to degree candidacy status after completion of 15 graduate semester hours.

b. Grade average of at least 3.0 on 4.0 scale.

c. Satisfactory grade on M.A.T. candidacy exam.

5. Graduation Requirements for all tracks

a. Application for graduation to Graduate School.

b. Program approval by Faculty Advisory Committee.

c. Satisfactory grade on written comprehensive examination over course work, with follow-up oral examination at option of examining committee.

IV. M.F.A. Degree Program

A. Program Admission

1. *Portfolio.* Approval by the area graduate committee of the applicant's creative work as specified below:

a. Graphic Design. Original and/or printed works.

b. Interior Design. 20-30 slides of drawings, perspectives, renderings, plans, elevations, etc.

c. Ceramics, Painting, Printmaking, and Sculpture. 20-30 slides of work mainly in the applicant's concentration area plus some slides of drawings and (optional) other media. Include additional views of 3-D pieces. Submission of original work might be further requested.

2. *Letters of recommendation.* Letters from two persons familiar with the applicant's creative activity but who are not members of the area graduate committee. (If applying for a teaching assistantship, each recommendation should contain reference to the applicant's teaching ability.)

3. *Statement.* A brief, personal statement of professional ambitions, intended concentration area, other special creative interests, and outline of previous professional experience.

4. *Deadline.* Applications for any given semester including summer sessions are normally decided during the regular academic year (approximately November 30th for Spring semester and April 30th for Summer and Fall entrance). Late applications will be considered, however, if space and faculty are available.

5. *Address.* Send slides, work, letters of recommendation, and statement to:

Coordinator of Graduate Studies
Department of Art
Memphis State University
Memphis, Tennessee 38152

6. *Conditional Admission.* The area graduate committee can award conditional admittance after reviewing the application with the provision that the student complete undergraduate prerequisites or otherwise correct deficiencies.

B. Program Prerequisites

1. *Previous education and experience.* Normally admission to the graduate program will require an undergraduate major in the applicant's concentration area. (See concentration areas listed above.) A baccalaureate degree from an accredited institution is required, with not less than 70 semester hours of art of which 12 hours should be in art history and 18 hours (24 hours for Graphic Design and Interior Design) must be in the concentration studio courses. Exceptions to the above requirements will be considered, however, when the portfolio and professional experience warrant it.

2. *Transfer credit.* Any applicant who holds an M.A. degree in studio art from another institution may transfer up to a maximum of 30 semester hours credit in art earned for that degree to apply toward the M.F.A. degree.

C. Prerequisites for Admission to Degree Candidacy

The student shall apply for admission to degree candidacy during the semester in which the student completes 30 hours of graduate work. To be approved for admission to candidacy, the student shall have:

1. A grade point average of at least 3.0 on a 4.0 scale.

2. Removed all departmental prerequisite requirements.

3. A planned degree program which meets all departmental and graduate school requirements.

4. The student must establish an overall history of satisfactory ratings in periodic review, a semi-annual evaluation of each student's general level of achievement by area graduate faculty.

D. Program Requirements

1. A total of 60 semester hours including a thesis of 6 semester hours in the student's area of concentration.

2. A total of 36 semester hours of studio art, excluding the thesis, with a minimum of 24 semester hours in the student's area of concentration.

3. Forty-two semester hours of 7000 level courses.

4. A total of 9 semester hours in art history.

5. A total of 9 semester hours of electives.

6. Satisfactory grade on a written comprehensive examination, with follow-up oral examination at option of examining committee.

7. Thesis (exhibition) to be approved by a faculty committee with the member under whom thesis was prepared as chair. For graphic design candidates, a

written thesis accompanied by appropriate visual documentation is required.

K020 ART (ART)

6010-19. Special Topics in Studio Art. (1-3). Topics are varied and announced in *Schedule of Classes*. May be repeated to a maximum of 9 hours when topic varies.

6020-29. Special Topics in Art Education. (1-3). Topics are varied and announced in *Schedule of Classes*. May be repeated to a maximum of 9 hours when topic varies.

6030-39. Special Topics in Art History. (1-3). Topics are varied and announced in *Schedule of Classes*. May be repeated to a maximum of 9 hours when topic varies.

6111. Art and Archaeology of Egypt. (3). Predynastic to Late Period.

6112. Egyptian Art and Archaeology in the Old and Middle Kingdoms. (3). Art, architecture, and archaeology, 3000-1500 B.C.

6113. Egyptian Art and Archaeology in the New Kingdom and Late Period. (3). Art, architecture, and archaeology, 1500-332 B.C.

6115. Introduction to Egyptian Hieroglyphics. (3). Grammar and translation of beginning Middle Egyptian.

6116. Intermediate Egyptian Hieroglyphics. (3). Grammar and translation of Middle Egyptian texts. PREREQUISITES: ART 6115.

6121. Ancient Arts of the Near East. (3). Architecture, sculpture, painting, and the minor arts in Mesopotamia, Anatolia, and Syria-Palestine.

6123. Greek Art. (3). Architecture, sculpture and painting from the Bronze Age to the end of the Hellenistic period.

6124. Roman Art. (3). Architecture, sculpture and painting from Etruscan Rome to the fall of the Empire.

6125. Art and Archaeology of Pompeii. (3). Pompeii's excavations, art, artifacts and architecture in reconstructing ancient Roman daily life.

6131. Early Christian and Byzantine Art. (3). The development of architecture, sculpture, and painting through the early medieval period, with emphasis on early Christian and Byzantine Art.

6134. Romanesque and Gothic Art. (3). The development of architecture, sculpture, and painting from the Carolingian (Proto-Romanesque) Period through the Gothic Period.

6141. Art of the Early Renaissance in Italy. (3). Survey of the architecture, sculpture and painting of Italy, 1300-1510.

6142. Northern Renaissance Art. (3). Fifteenth century art in Northern Europe with emphasis on panel painting, manuscript illumination and printmaking.



6143. Art of the High Renaissance in Italy. (3). Sixteenth century art in Italy, highlighting the works of Michelangelo, Raphael, Titian and the Mannerists.

6146. Baroque Art. (3). Historical study of the architecture, sculpture, and painting produced in Europe during the seventeenth century.

6151. Nineteenth-Century Art. (3). Art movements of the nineteenth century from Neo-Classicism to Impressionism.

6154. Modern Art. (3). Major art developments in European painting and sculpture from the 1890's through World War II, including Fauvism, Cubism and Surrealism.

6156. Art Since 1945. (3). Major art movements and contemporary schools of criticism from World War II until present day. Major trends include Abstract Expressionism, Pop Art, and Earth Art.

6158. Modern Architecture. (3). 19th century styles, 20th century masters, contemporary developments in architecture, including historic preservation.

6162. Latin American Art. (3). Hispanic arts of the Americas from 1500 to the present, considered in relation to Iberian and Indian traditions.

6163. Pre-Columbian Art. (3). A survey of the ancient arts of Mexico, Central America, and South America from c. 1000 B.C. to European contact.

6166. Art of the United States. (3). (6167, 6168). American painting, sculpture, and art theory from Colonial period to 1945.

6181. Primitive Art. (3). Survey of traditional styles of African, Oceanic, and North American Indian art considered in relation to their cultural contexts.

6190. Theory and Criticism in Art Literature. (3). Survey of theoretical issues relative to creation and comprehension of art in today's world.

6201. Advanced Design-Plastics I. (3). Two-dimensional and three-dimensional design in plastics employing basic methods of casting resins and thermoheating processes using sheet, rod, and tube plastics.

6205. Advanced Design-Continuous Pattern Processes I. (3). Design with emphasis on both the theoretical and practical approaches to continuous pattern processes using various media and processes.

6206. Advanced Design-Continuous Pattern Processes II. (3). Continuation of ART 6205; advanced work in constructed pattern processes.

6207. Advanced Color. (3). In-depth study of contemporary color concepts for designers and practicing artists. Personal exploration of the phenomena of color perception in relation to color organization encouraged according to individual student's professional goals.

6208. Advanced Design-Special Problems. (3). Emphasis on contemporary design issues within our region; specific design fields offered by professional designers working in a broad scope of specializations who would serve as guest/resident/or adjunct faculty on a rotational basis.

6221. Graphic Design for Print Communications. (3). Practical problems in the areas of publication, information, corporate, and promotional design.

6222. Graphic Design for Video Communications. (3). Study and execution of graphics for television, incorporating computer animation and design for the video environment.

6223. Specialized Studies in Graphic Design. (3). Advanced instruction in either illustration, typography, and publication design, 3-dimensional design, or corporate and promotional design. May be repeated to a maximum of 12 hours when topics vary.

6224. History of Graphic Design. (3). Cultural, theoretical, and stylistic aspects of major movements in field of graphic design in Europe and America from the Industrial Revolution to present.

6231. Professional Practices: Graphic Design. (3). Instruction by a graphic arts practitioner in one of the following professional settings: design and concept, copy preparation, advertising graphics, and commercial photography. May be repeated to maximum of 12 hours when topics vary.

6232. Visual Design Business Practices. (3). Introduction to current business, legal, and trade practices relating to the profession of graphic design.

6233. Design Practice Studio. (3). Faculty supervision on projects for institutional and corporate clients; development of publications, exhibits, signage and other graphics, and participation in professional design process from project inception to completion. May be repeated to a maximum of 12 hours with approval of the adviser.

6237. Interior Design Studio II. (3). Advanced study in Interior Design. Comprehensive studio assignments including space planning, construction, lighting and complete furnishings specifications with samples, concluding with class presentation by the student designer.

6238. Interior Design Studio III. (3). A continuation of ART 6237 with further advanced studio assignments in commercial and residential interior design, with class presentations. PREREQUISITE: ART 6237 or permission of instructor.

6239. Interior Design Business Practices. (3). The study and application of the principles, procedures and business practices of Interior Design. Contracts, Letters of Agreement, Work Orders, business forms and specification writing are developed in conjunction with lectures and studio assignments.

6240. Interior Design Internship. (3). An approved on-the-job apprenticeship experience with a co-operating employer in an Interior Design firm's studio, retail store or designer showroom handling products of the interior furnishings industry. The student's training will be evaluated by the employer and the interior design faculty at the conclusion of the course. PREREQUISITE: ART 6239 or permission of instructor.

6321. Drawing and Painting I. (3). An advanced course in drawing and painting methods with emphasis on transparent watercolor.

6322. Drawing and Painting II. (3). A continuation of ART 6321 with attention given to various mixed media.

6331. Painting III. (3). Advanced problems in oil painting, presupposing that the student has mastered basic techniques and is ready for a more experimental approach to the subject.

6332. Painting IV. (3). A continuation of ART 6331 with emphasis on development of a personal style.

6341. Illustration. (3). Survey of many areas requiring services of an illustrator and including preparation of book, magazine, advertising, and television illustrations.

6351. Advanced Printmaking I. (3). Specialization in one or two printmaking media with emphasis on development of personal imagery and technical skills.

6352. Advanced Printmaking II. (3). Advanced work on one or two printmaking media with continued development of personal imagery and advanced technical skills.

6380. Museology. (3). (Same as Anthropology 6380). The history and development of museums; mandate and variety of institutions; significant research facilities; historical and contemporary collections; and the educational roles of museums in contemporary society.

6381. Art Curatorial Techniques. (3). Concentrates on curatorial responsibilities and functions, receiving and shipping methods, registration, physical and environmental security, research, conservation, and a study of the art market and publications.

6382. Museum Operation. (3). (Same as Anthropology 6382). Basic aspects of museum organization, management, exhibit planning and execution, and maintenance of collections and records.

6384. Museum Internship. (3). Approved internship with cooperating museum or gallery, emphasizing curatorial program and/or operational duties. PREREQUISITES: Permission of the instructor and one of the following or the equivalent: ART 6380, 6381 or 6382.

6410. Art Education Independent Study. (1-3). Theoretical and pragmatic ideas relevant to teaching of art. May be repeated to a maximum of 6 hours.

6424. Woven and Constructed Fiber Design I. (3). Creating fiber craft objects and wall hangings primarily through weaving with multiple harness looms; fiber spinning and dyeing.

6425. Woven and Constructed Fiber Design II. (3). Advanced loom weaving techniques and other fiber processes such as macrame, stitchery, and applique. PREREQUISITE: ART 6424 or permission of instructor.

6511. Sculpture IV. (3). Advanced work in various sculptural media.

6512. Sculpture V. (3). A continuation of ART 6511 with emphasis on personal expression.

6521. Ceramics III. (3). Introduction to pottery-making, including hand forming and production processes using clays, plaster, and cements.

6522. Ceramics IV. (3). A continuation of ART 6521, offering further study in pottery-making and glazing; emphasis on design.

6531. Jewelry I. (3). Jewelry-making; emphasis on materials and equipment. Nature and possibilities of metals, stones and other materials investigated in terms of good jewelry design. Basic projects in enameling, soldering, pickling, buffing, and other techniques.

6532. Jewelry II. (3). Jewelry-making and metalwork. Study and practice in good design. Work done in lost wax casting, champleve, cloisonne, and combinations of materials.

6621. Workshop in Art I. (3). Specific art problems as they apply to individual student; emphasis on basic art concepts and creative experience.

6622. Workshop in Art II. (3). Continuation of ART 6621, providing study of problems appropriate to needs of individual student.

6641. Study and Travel in Art. (3 or 6). Travel to important art areas of the world with specialized study under direction of departmental faculty member. Research problem assigned and evaluated by major professor required.

6650. Professional Art Practices. (3). Development of skills needed for success as practicing professional artist, including portfolio preparation and presentation, marketing, contracts, copyrights, and alternative art careers.

6701. Color Photography. (3). Exploration of photographic perception in color. Survey of the history and aesthetics of color photography. Techniques of color photography with emphasis on color printing. PREREQUISITE: ART 2702 or ART 6002 or permission of instructor.

6702. Photographic Materials and Processes. (3). Primarily an advanced technical course exploring the creative potential in various contemporary and historical photographic materials, processes and techniques. Emphasis is on aesthetic application of those materials and techniques. PREREQUISITE: ART 2702 or ART 6002 or permission of instructor.

6703. Alternative Photographic Processes. (3). Creative potential of archaic and non-traditional photographic processes such as Cyanotype, Gum Bichromate and Kwik-Print. PREREQUISITE: ART 2702 or permission of instructor.

6704. Photographic Lighting. (3). Advanced theory, technique, and equipment used by professional photographers for black and white and color. Emphasis on aesthetic application in actual practice. PREREQUISITE: ART 6701 or permission of instructor.

6721. History of Photography. (3). Cultural and aesthetic consideration of the photographic image; visual and technical developments from the medium's pre-history to 1945.

6722. History and Criticism of Contemporary Photography. (3). Historical and critical issues in photography since 1945.

7002. Photography Workshop (3). Exploration of black and white still photography as a means to personal expressive statement and self-discovery. Initial emphasis on portraiture. PREREQUISITE: ART 7001 or permission of instructor.

7010-19-8010-19. Special Topics in Studio Art. (1-3). Topics are varied and announced in *Schedule of Classes*. May be repeated to maximum of 9 hours when topics varies.

7020-29-8020-29. Special Topics in Art Education (1-3). Topics are varied and announced in *Schedule of Classes*. May be repeated to maximum of 9 hours when topics varies.

7030-39-8030-39. Special Topics in Art History. (1-3). Topics are varied and announced in *Schedule of Classes*. May be repeated to maximum of 9 hours when topics varies.

7110. Advanced Individual Study in Art History. (3). Historical periods of art history with emphasis on

individual research. May be repeated for credit when topic varies. **PREREQUISITE:** permission of instructor.

7120-8120. Medieval Art. (3-9). Selected areas or specific problems in Early Medieval, Romanesque or Gothic Art. May be repeated upon recommendation of adviser.

7121-8121. Ancient Art. (3-9). Selected areas or specific problems in Egyptian, Near Eastern, Greek, or Roman Art. May be repeated upon recommendation of adviser.

7125. Egyptian Art and Archaeology. (3). Topics and problems in Egyptian art and archaeology. May be repeated upon recommendation of adviser.

7130-8130. Art History Methods and Professional Practice. (3). History of the discipline along with current research methods. Students develop research presentations in oral and written formats.

7140-8140. Renaissance Art. (3-9). Selected areas or specific problems of Renaissance Art. May be repeated upon recommendation of adviser.

7150-8150. Nineteenth Century Art. (3-9). Selected areas of specific problems in Nineteenth Century Art. May be repeated upon recommendation of adviser.

7152-8152. Twentieth Century Art. (3-9). Selected areas or specific problems in Twentieth Century Art. May be repeated upon recommendation of adviser.

7165-8165. American Art: Ancient to Modern. (3-9). Selected areas or specific problems in Pre-Columbian, North American Indian, Spanish Colonial, or American Art. May be repeated upon recommendation of adviser.

7200-8200. Photography Seminar. (3). Self-assigned visual/conceptual photographic problem in which journal is kept; group critiques and some seminar activities. May be repeated for a maximum of 6 hours.

7201-8201. Advanced Research Photography. (3). Independent work and research in photography. May be repeated for a maximum of 9 hours. **PREREQUISITE:** Consent of instructor.

7330-8330. Studies in Two-Dimensional Media. (3-12). Exploration of an original visual arts idea in two-dimensional media. May be repeated several times depending upon recommendation of adviser.

7420. Methods for K-12 Art Instruction. (2). Instructional planning, implementation and evaluation applied to elementary and secondary school art programs.

7460-8460. Studio Media for Art Educators. (3). Visual art and craft activities using processes, materials and analyses applicable to instruction by the art specialist.

7470-8470. Issues in Art Education. (3). Survey of historical and current literature concerning art instruction methods and curriculum design.

7480-8480. Art Education Visual Project. (3). Preparation and display of original research involving art curricular or instructional issues in a theoretical or experimental study. **PREREQUISITES:** ART 7460 and 7470, or permission of instructor.

7550-8550. Studies in Three-Dimensional Media. (3-12). Exploration of an original visual arts idea in three-dimensional media. May be repeated depending upon recommendation of adviser.

7640. Studies in Computer Animation. (3). Advanced techniques and principles of visual communication in the video animation format. **PREREQUISITE:** permission of instructor.

7660-8660. Directed Individual Study. (3-9). Individual investigation of special research problems or projects. May be repeated upon recommendation of adviser.

7710. Independent Studies in Black and White Photography. (3). Independent exploration of original black and white photographic art ideas and studio techniques. May be repeated for maximum of 6 hours upon recommendation of adviser.

7711. Advanced Photography Seminar. (3). (6711) Emphasis on finding a personal direction within the student's work, pursuing that direction and discussing it in class critiques. **PREREQUISITE:** ART 7003 or permission of instructor.

7712. Photography Portfolio Seminar. (3). (6712) Student must produce a book of photographs or portfolio (bound by student) which represents a coherent, in-depth picture statement. **PREREQUISITE:** ART 7711.

7770. Studies in Mixed Media. (3-12). Explorations of an original visual arts idea in mixed media. May be repeated upon recommendation of adviser.

†7996. Thesis. (1-6). Preparation and defense of a thesis prepared under direction of major professor. Studio Art thesis requires an exhibition.

†Grades of S, U, or IP will be given.

JOURNALISM

DAN L. LATTIMORE, Ph.D., *Chair*

Room 300 Meeman Journalism Building

GERALD C. STONE, Ph.D.,

Coordinator of Graduate Studies

I. The Department of Journalism offers the Master of Arts degree with a major in Journalism and concentrations in General Journalism and Journalism Administration.

II. M.A. Degree Program

Graduate students who select Journalism as a major area will consult with the Coordinator of Graduate Studies in the department about their programs of study.

A. Program Admission

1. *Regular Admission* requires meeting the admission standards of The Graduate School plus: a) a 900 GRE score with a 500 on the verbal section, or 40 MAT score; b) a bachelor's degree in journalism or mass communication from a program accredited by the Accrediting Council on Education in Journalism and Mass Communication (ACEJMC) or completion of the following prerequisite courses with a grade of "C" or better from an ACEJMC - accredited program: Survey of Mass Communication, Elementary Newswriting, Mass Communication Law and another course selected in consultation with the Coordinator of Graduate Studies, or the completion, with a grade of "B" or better, on proficiency exams administered by the department's Graduate Studies Committee in the four courses.

2. *Conditional Admission* requires meeting admission standards of The Graduate School plus: a) completion of the four prerequisite courses in (1.a.) above with a grade of "B" or better; b) students earning a GRE or MAT score acceptable for admission to Memphis State University but not sufficient to be admitted to the M.A. degree program in journalism may be admitted conditionally but must satisfy all requirements before completing 15 credit hours.

B. Program Requirements

1. Students may choose one of two degree programs, both of which require the nine-credit journalism core of JOUR 7050, 7075 and 7100, other coursework approved by the student's advisory committee constituting a total of at least 30 units of graduate credit including a written comprehensive exam on core coursework taken in the program, a six-credit thesis, and an oral and/or written defense of the thesis: (A) Journalism Administration, which includes four courses in the Fogelman College of Business and Economics: ACCT 7000, FIR 7070, MGMT 7030 and either ECON 7010 or MKTG 7060, and three credit hours of electives in journalism; (B) General Journalism, which includes 9 or 12 hours of elective graduate journalism coursework and six hours of electives taken outside the Journalism Department.

C. Each student is responsible for obtaining a copy of the Master of Arts in Journalism document from the Coordinator of Graduate Studies or the Department Office. The document will answer most questions about the program.

K260 JOURNALISM (JOUR)

6702. Current Issues in Journalism. (3). (3322). Advanced study of recent, critical problems faced by the mass media; with exploration of complexities which cause them.

6708. Journalism Professional Ethics. (3). Classical approaches to ethics presented with their application to day-to-day considerations a journalist must face in working with employers, local publics and larger society which depends on a free and responsible press.

6710. Mass Media and New Technology. (3). Scope of developing technology in mass media including cable, satellites, video recorders and discs, lasers, optical fiber, videotext, computers and similar communication advances. Industry considerations and effect of new technology on society.

6712. International Mass Media. (3). International communication, flow of news and propaganda; role in national development and international affairs; growth and impact of global journalism, television news, advertising and public relations; comparison of media systems.

6800-09. Special Topics in Journalism. (3). Intensive study of a single critical issue or current topic. Topics may vary. May be repeated for a maximum of six hours.

7050. Modern Journalism Theories. (3). (6704). Key concepts and development of theories offered to explain operation and effects of mass communication media; multi-discipline overview of 20th century theories dealing with advertising, broadcasting, print and public relations messages, media and effects.

7075. Journalism Research Methods. (3). (6726). Familiarization with content analysis, survey research, data analysis, and field studies as practiced by reporters, editors, and public relations decision makers. Modern research techniques and class project using computer analysis. **PREREQUISITE:** Permission of instructor.

7100. Journalism Administration Methods. (3). Administration of advertising, news and public relations enterprises; systems analysis exploration of classic management principles in organization, assessment of environment, planning and strategy, budgeting, staffing, decision-making, and other functions in advertising, news, and public relations.

7200-09-8200-09. Special Topics in Journalism. (1-3). Topics are varied and announced in *Schedule of Classes*.

7300. Literature in Ad, PR, and News. (3). Scholarly publications, books, and periodicals in advertising, public relations, and the news media; general review of literature in the field.

7350. Advanced News Practices. (3). Recent research findings in news reporting, writing and editing principles; practical experience in preparing finished news reports suitable for publication or dissemination in professional-level mass medium.

7400. Public Relations Principles and Issues. (3). Contemporary social trends, public relations roles and responsibilities, and applicable public relations theory.

7420. Public Relations Programming and Production. (3). Design and implementation of public relations programs in response to contemporary issues.

7440. Organizational Public Relations. (3). How organizations maintain rapport with their publics and the mass media by effectively communicating long-range goals.

7700. Directed Individual Research. (3). Projects on non-thesis related topics of special interest to the student ending in a completed research article or report.

7800. Directed Individual Readings. (3). Preparation of literature review for master's thesis with extensive bodies of writing in topic areas. May be taken to prepare scholarly papers on subjects of individual interest.

†7999. Thesis. (1-6).

†Grades of S, U, or IP will be given.

MUSIC

RUSSELL PUGH, Ed.D., *Interim Chair*

Room 123B, Music Building

WALTER WADE, Ph.D., *Coordinator of Graduate Studies*

I. The Department of Music offers the Master of Music degree with a major in Music and concentrations in Applied Music, Sacred Music, Music Theory, Music History, Orff-Schulwerk, Pedagogy, and Music Education; the Master of Arts degree with a major in Music and a concentration in Musicology; Regional Studies, the Doctor of Musical Arts degree with a major in Music

and concentrations in Composition, Performance, Sacred Music, and Music Education; the Doctor of Philosophy degree with a major in Music and a concentration in Musicology; Regional Studies. The Education Specialist degree is also available through the Department of Curriculum and Instruction with a major in Curriculum and Instruction and a concentration in Music Education.

The Department of Music is a member of the National Association of Schools of Music.

A. Prerequisites to graduate standing.

A baccalaureate degree in music or the equivalent is required before entrance to a master's program in music.

Graduate work in theory, history, or applied music may not be taken until any identified deficiencies in these areas are removed. Graduate proficiency examinations in music theory and music history are generally held on the two days preceding graduate registration for the fall, spring, and summer terms.

1. A satisfactory grade shall be made on the aural and written theory proficiency examinations. A comprehensive course in theory, analysis, and ear-training (MUTC 6202) is recommended for graduate students in need of review and preparation for graduate work in theory. A satisfactory grade in this course will satisfy the graduate entrance requirement in theory.

2. A satisfactory grade shall be made on the music history and literature proficiency examination. MUHL 3301 and 3302 (Survey of Music History) are recommended for graduate students in need of review and preparation for graduate work in history. Satisfactory grades in these courses will satisfy the graduate entrance requirement in history.

3. A successful audition (or acceptable compositions in various media for candidates who plan a major concentration in composition) shall be presented when applicable to the anticipated degree program.

4. Students who plan an Applied Music concentration with an emphasis in Vocal Pedagogy or Vocal Performance must satisfactorily pass the proficiency examination in Diction administered by the Voice Division. Unsatisfactory performance in this area will make immediate enrollment in the Diction course mandatory.

5. All entering students for whom English is not a native language are required to demonstrate competency in written and spoken English, and, if necessary, complete satisfactorily instruction through the level of ENGL 1101.

6. All music majors in masters degree programs must take a piano proficiency placement prior to enrollment.

B. Prerequisites to masters degree candidacy.

1. The program of the student's intended degree shall be planned.

2. The student shall declare a major concentration area. Admission to graduate standing in the proposed major must be approved by the area chair.

3. A thesis topic shall be chosen and approved on those degree programs involving the thesis.

4. Satisfactory completion of the keyboard proficiency examination. Examination must be taken at the scheduled time ONE SEMESTER PRIOR to graduation.

C. Prerequisites for graduation.

1. A student with a concentration in applied music must successfully complete an audition for his public recital and shall perform that recital with distinction.

2. A student of whom a thesis is required shall submit an acceptable thesis.

3. The comprehensive examination shall be taken and passed.

Outstanding performers may be recommended for the Performer's Certificate by their major professor at the time the recital audition is held. Following a favorable recommendation of the audition committee, the Chair of the Department of Music will convene a panel of the applied music faculty to hear the recital and make a recommendation concerning the award.

Complete details of this outline may be obtained by writing the Coordinator of Graduate Studies in Music, Department of Music.

II. M.Mu. Degree Program

A. Core Requirements (10 Hours)

Special Topics in Music History (See Note 1) MUHL 7260-7266 (3)

Theory (See Note 2)

Analytical Techniques	MUTC 7102	(3)
Theory I	MUTC 7201	
Theory II	MUTC 7202	

Bibliography and Research Methods	MUHL 7400	(3)
Large Graduate Ensemble	MUHL 7001	(1)

B. Program Requirements (See Note 3) (22-25 Hours)

1. Applied Music (See Note 4)

Applied Music (individual lessons) (12-14)

Recital, Lecture Recital, Composition Practicum, or Thesis (3)

Large Graduate Ensemble MUAP 7001 (1)

Music Electives (6)

2. Sacred Music

Applied Music (individual lessons in organ or voice) (8)

Sacred Music Core (9)

Recital (3)

Large Graduate Ensemble MUAP 7001 (1)

Electives (3)

3. Music Theory

Music Theory (12)

Minor Concentration in Music (6)

Thesis MUTC 7999 (3)

Large Graduate Ensemble MUAP 7001 (1)

Music Electives (3)

4. Music History

Music History (12)

Minor Concentration in Music (6-9)

Thesis MUHL 7999 (3)

Large Graduate Ensemble MUAP 7001 (1)

5. Pedagogy

Applied Music (individual lessons) (6-8)

Pedagogical Area (14-17)

Graduate Ensemble (1)

6. Orff-Schulwerk

Orff-Schulwerk Core (12)

Graduate Ensemble (1)

Electives (9)

7. Music Education (See Note 5)

Applied Music (individual lessons) (2)

Music Education Core (9)

Large Graduate Ensemble MUAP 7001 (1)

Music Education Electives (5-6)

Electives (6)

C. NOTES:

1. A satisfactory grade on the music history proficiency examination must be made before enrollment in a course in Special Topics in Music History. For graduate students in need of review, MUHL 3301 band 3302 are offered. These courses do not apply to the fulfillment of degree requirements.

2. A satisfactory grade on the aural and written theory proficiency examinations must be made before enrollment in one of the suggested graduate theory courses. For graduate students in need of review, MUTC 6202 is offered. While this course does not apply to the fulfillment of degree requirements, a satisfactory grade in this course will meet the graduate entrance requirement in music theory.

3. Specific program requirements are determined as a cooperative effort between the student and the Adviser of Record.

4. For students studying voice, a minimum of 6 undergraduate hours in each of the following languages is required: French, German, and Italian. In addition, a student must have 2 semesters of Song Repertory. Both the language and repertory requirements may be fulfilled while a student is in the Graduate School.

5. This program is designed for individuals holding a license in music. If a candidate is not licensed to teach music, all requirements for licensure must be met prior to admission to graduate study.

III. M.A. Degree Program

Program Requirements

1. 18 hours in musicology to include MUHL 7400, MUHL 6800, and MUHL 7800 (9 hours).

The remaining 9 hours must focus on southern regional music.

2. 12 hours in anthropology, history or other related fields to be selected in consultation with the advisers in music and the other fields

3. 3 hours in thesis to be jointly supervised by advisers in music and a related field.

4. A reading knowledge of German, French, or Spanish must be demonstrated prior to graduation.

Proficiency requirements in music theory and music history may be waived in the case of students not having undergraduate degrees in music if the student's program of graduate study and research in regional ethnomusicology is continued in a historical or sociological direction. The petition must be initiated by the student, endorsed by the coordinator of graduate studies in ethnomusicology, and approved by the graduate music faculty before the student has completed 15 hours of graduate study in this program. The piano proficiency examination may also be waived through the same process of petition.

IV. D.M.A. Degree Program

The program as outlined in this presentation is shaped to allow maximum flexibility in designing a program around the individual student's background and needs. While the distribution of hours is firm, program requirements are to be regarded as general rather than fixed. The student's preparation and experience will be carefully evaluated in the light of his stated goals before prescribing an individually selected course of study suited to his particular needs.

Students requesting admission to the doctoral programs in music must either present a master's degree in the area of specialization which they intend to pursue or provide the faculty with satisfactory evidence of their ability to perform in the intended area of specialization, either through performance in required courses or satisfactory performance in proficiency examinations. In general, an entering student should have a good grasp of music theory as applied to the various musical styles in evidence from approximately the eleventh century to the present. There should be a thorough knowledge of the historical style periods in considerable detail and an awareness of the relationship between the music and the sociological and historical events which produced it. Performers must present satisfactory evidence of the successful completion of several recitals with a list of music currently in the performer's repertory, which should be composed of representative literature available for the instrument. Composers should present scores in a variety of media for examination by the composition faculty and evidence of performances of at least some of these works.

A. Admission to the Post-Master's Program

The following items are requirements for admission:

1. Official transcripts showing undergraduate and graduate work

2. Completion of one of the following degrees or its equivalent:

- Master of Music
- Master of Music Education
- Master of Arts in Music History
- Master of Arts in Applied Music
- Master of Arts in Ethnomusicology (Southern Regional Studies)

Admission to the Graduate School merely gives the privilege of taking course work. It does not in any way imply that the student is admitted to candidacy for an advanced degree.

3. *Proficiency/Qualifying Examinations.* All entering students must take the proficiency/qualifying examinations in music history and music theory. These are given at 4:00 p.m. on the two days preceding graduate registration. Students with identified deficiencies in these areas will not be allowed to take graduate courses in history or theory until the deficiencies are removed.

NOTE: Only 12 graduate hours may be taken before achieving Early Doctoral Status.

B. Prerequisites for Early Doctoral Status

1. Take the qualifying examinations in Music Theory and Music History. The qualifying examinations are designed to measure two distinct areas: (a) knowledge equivalent to that acquired in the master's level theory-history core and (b) knowledge reflective of a level beyond that expected of master's degree candidates. In the first area (a), the unsuccessful completion of the examinations may result in the assignment of graduate courses in theory and/or history to satisfy the deficiency. In the second area (b), the examination is diagnostic and will indicate areas of weakness at the doctoral level. These weaknesses may be strengthened by enrolling in one or more appropriate doctoral courses in these areas, or by independent study.

2. Take the qualifying audition (performance majors); submit a portfolio of compositions (compositions majors); submit essay (music education majors). Sacred Music will submit an essay, portfolio of compositions, or audition as is appropriate to their specialty. Voice performance students must pass the vocal diction proficiency examination or take the undergraduate diction course.

3. Acceptable score on the Graduate Record Examination.

C. Early Doctoral Status

When the student has successfully completed the prerequisites for early doctoral status, the Early Doctoral Form should be filed. The following three steps should be completed before the student may take courses at the 8000 level:

1. Take courses beyond the initial 12 hours.
2. Set up the doctoral committee.
3. Formulate a program of study, with approval of his committee.

D. Late Doctoral Status

Prerequisites: successful completion of 40 hours of course work, the comprehensive written examinations in music theory and music history, and the comprehensive oral examination. Having completed these prerequisites, the student should file the candidacy forms and Late Doctoral Form and seek approval of the dissertation or recital topic.

Submission of the Dissertation. All regulations of the Graduate School regarding the mechanics and submission of the dissertation apply with equal force to those in music.

The research paper for those in performance should be an exhaustive study of the material chosen. While requirements for specific projects may vary, it is expected that an adequate paper would be no less than 60 pages. The same regulations of the Graduate School regarding the mechanics and submission of dissertations apply with equal force to these research papers.

Final Examination. For students writing a dissertation the final examination will consist of a defense of the dissertation before the dissertation committee. Other faculty may attend or be invited to participate.

For those in performance the examination will be a defense of the literature performed, the research on the lecture recital material, or other areas related to performance. At the conclusion of the examination the results, in writing, will be conveyed to the Coordinator of Graduate Studies by the major professor.

Graduation. The timetable and requirements for graduation are set by the Graduate School and published in the graduate bulletin.

E. Post-Master's Assistantships. Study at the post-master's level involves considerable sacrifice of time and often earning power to fulfill the requirement of most institutions that a full year must be spent in residence before a degree can be awarded. By awarding assistantships at the post-master's level, the Department of Music seeks to accomplish two purposes: first it is our intention to attract the very best combination of talent and scholarship available; and second, it is our wish to encourage as many talented, mature students as possible to continue learning by providing basic subsistence during the year of residence. Normally, therefore, stipends to post-master's students will be for one year only. In exceptional cases, staffing or research needs may make an extension for a second year desirable. Students to be offered an extension for a second year will be notified by February 1.

**F. Concentration Area Requirements**

1. **Performance** (bass, bassoon, cello, clarinet, flute, harpsichord, horn, oboe, organ, percussion, piano, saxophone, trombone, trumpet, tuba, viola, viola da gamba, violin, voice) (63 hours)

In addition to the area of specialization, a minor area in music is required. Elective hours may be taken either in music or in other areas. Three public recitals are required to satisfy the performance concentration. The last of these must be a lecture recital on a topic selected by the candidate and approved by his committee. The material covered in this recital will be submitted also as a formal research paper. Each of the recitals must be taped and a copy of the tape placed on file in the library. A summary of the material covered in the lecture recital project, suitable for publication as a research article, must be submitted prior to the final oral examination.

Because of the extensive literature, piano majors will be required to perform a chamber music recital (2) and a standard concerto (2). (These hours will count as part of the applied music requirement.)

Distribution of hours will normally be as follows:

	HOURS
Applied Music	24
Minor Area in music	18
Electives, to be chosen with the approval of the student's committee	12
Recital	9
2. Composition (60 hours)	
Composition (to include 3 hours of Composition Practicum)	21
Minor Area in music	18
Electives, to be chosen with the approval of the student's committee	12
Dissertation*	9

*This will consist of a work of major proportions.

3. Sacred Music (60) hours

MUSA 8801 Studies in Sacred music (topics to vary) (9)

Other courses in any of the following areas: (18)

Voice
Voice Pedagogy
Conducting
Choral Techniques
Organ
Sacred Music
Orff-Schulwerk

Music Minor (12)

Twelve hours in one area of music which is not part of the sacred music core, to be chosen in consultation with student's committee.

Electives (12)

To be chosen in consultation with the student's committee.

Final Project (9)

The final project may take different forms and will reflect the minors as well as the sacred music major. It could be a dissertation, recitals, lecture-recitals, compositions, or a combination.

4. Music Education (60-62 hours)

Music Education - 12 hours
Music History - 6 hours
Music Theory - 6 hours
Professional Education - 6 hours
EDRS 7541/8541 Statistical Methods - 3 hours
Elective - 3 hours
Applied Music - 4 hours (individual study)
Ensemble - 2 hours
General Electives - 14-16 hours (to be chosen in consultation with the student's committee)
Dissertation - 10 hours

VI. Ph.D. Degree Program—Musicology-Regional Studies (60 hours)

Students will follow either:

(a) a program providing a broad background in historical musicology culminating in research appropriate to the regional studies thrust of the concentration:

A minimum of eleven courses in the major area	33
Six courses in an approved academic minor other than music	18
Dissertation	9

OR

(b) a program providing a broad background in ethnomusicology:

A minimum of eleven courses in the major area — 33 hours

MUHL 7400 Bibliography and Research Methods	3
MUHL 7800 Field Methods in Musicology	3
MUHL 8801 Ethnomusicology Theory	3
MUHL 8805 Transcription and Analysis in Ethnomusicology	3
MUHL 8806 Seminar in Southern Regional Music	3
Four of the remaining six courses in music shall have a major focus on southern regional music.	18
Six courses in an approved academic minor area or areas other than music	18
Dissertation (MUHL 8999)	9

Specialized courses in music and appropriate related disciplines that support the students research interest will be included.

In special cases with the approval of a student's committee, no more than 9 hours in areas of music,

other than Ethnomusicology, may be counted toward the fulfillment of the required 18 hours in a minor area or areas.

A reading knowledge of two of the following, French, German, and Spanish, must be demonstrated prior to degree candidacy.

The Music Department's master's level proficiency examinations in music theory and history shall be the minimum criteria for doctoral status in the Ph.D. program in Musicology: Regional Studies. Students needing additional work must successfully complete MUTC 6202 for theory and/or MUHL 7301, and/or 7302 for history.

Proficiency requirements in music theory and music history may be waived in the case of students not having undergraduate degrees in music if the student's program of graduate study and research in regional ethnomusicology is continued in a historical or sociological direction. The petition must be initiated by the student, endorsed by the director of graduate studies in ethnomusicology, and approved by the graduate music faculty before the student has completed 15 hours of graduate study in this program.

K320

COMMERCIAL MUSIC (CMUS)

6102. Composer's Workshop: Jazz/Commercial. (3). Composition in musical styles for various sizes of instrumental and vocal groups; writing for commercials, arranging; recording studio techniques. PREREQUISITE: CMUS 2502.

6103. Jazz and Studio Ensemble Techniques. (3). Jazz and studio performance styles, emphasizing arranging, ensemble technique, articulation, phrasing, recording studio techniques, and conducting.

001. INSTRUMENTAL PERFORMANCE

002. VOCAL PERFORMANCE

6260-69. Special Topics in Commercial Music. (1-3). Topics are varied and announced in *Schedule of Classes*. May be repeated with change of topics.

6502. Introduction to Film Scoring and Editing. (3). Basic problems of writing music for film; commercials, shorts, and full length productions; selection of appropriate styles; introduction to editing room equipment; assignments for 16 MM and 35 MM film; writing from a cue sheet. PREREQUISITE: CMUS 2502 or permission of instructor.

6503. Music Copying and Preparation. (3). Preparation of music for performance, recording, and publication; introduction to materials and calligraphic instruments; preparation of scores and parts; use of transparencies and the Ozalid process. PREREQUISITE: Basic music writing skill exam, permission of instructor.

6602. Introduction to Commercial Music. (3). A survey of the music industry: copyright, royalties, producing, labor relations, promotion, advertising, and distribution.

6603. Legal and Business Practices of the Recording Industry. (3). Study of commercial music in a format of lecturers and distinguished guests from the industry. Individual projects are required. PREREQUISITE: CMUS 6602 or permission of the instructor.

7010. Advanced Improvisatory Practices and Materials. (3). Advanced improvisational techniques, including motivic development, pan-diatonic, pan-chromatic, and free improvisation; practices involving pentatonic, quartal, cluster, and polychordal compositions; survey and analysis of published improvisation teaching materials. PREREQUISITE: Two semesters (or equivalent) of undergraduate improvisation, permission of instructor.

7101. Jazz Program Administration. (3). Basic administration of a college level jazz program; course and curriculum development/design, scheduling/planning, material acquisition, basic equipment needs, budgeting and budget administration, concert and festival planning/programming/production. PREREQUISITE: Permission of instructor.

7260-69. Special Topics in Jazz Studies. (1-3). May be repeated with change of topic.

7699. Media Music Production Practicum. (3).

7801. Studies in Jazz and Commercial Music. (3). Directed individual or class study in selected areas chosen in consultation with instructor. May be repeated with change in topic for a maximum of 9 hours credit.

7999. Thesis: Jazz and Studio Music. (3).

K307 MUSIC THEORY AND COMPOSITION (MUTC)

6202. Seminar in Music Theory and Analysis. (3). Theory, counterpoint, and analysis of literature. Contrapuntal and harmonic techniques. Research; theoretical problems from a pedagogical point of view; writing in strict and free styles. Recommended as a review course for graduate students. May not be counted toward any degree program in music except the M.A. and Ph.D. in Musicology with permission of the major advisor.

6260-69. Special Topics in Theory and Composition. (1-3). Topics are varied and announced in *Schedule of Classes*. May be repeated with a change in topic.

6501. Composition. (2 or 4). Composition in varied forms for large and small ensembles and solo instruments; analysis of contemporary works and practical application of techniques. May be repeated for additional credit. Composition is taught as applied music. Students receive the equivalent of one hour lesson per week. The fee for this instruction is \$60.00 per semester.

7101-8101. Pedagogy of Theory. (3). A practical course in classroom procedure. Demonstrations by students and instructor in teaching the rudiments, elementary and advanced theory, various styles of counterpoint, and ear training. Various theoretical systems. Bibliography.

7102-8102. Analytical Techniques. (3). Techniques of analysis of styles and structure of music from all periods of the history of music.

7103-8103. Advanced Orchestration. (3). Investigation of orchestration practices of the great composers from the classical period to the present. Sections of non-orchestral works by representative composers will be orchestrated in the style of the period of their composition.

7201-8201. Theory I. (3). Analysis of style features of the music of the 11th century through the Baroque period.

7202-8202. Theory II. (3). Analysis of style features of the music of the Classic, Romantic, Impressionistic, and Contemporary periods.

7203-8203. Studies in Music Theory. (3). Independent investigation of a research procedure or directed reading in selected areas of music theory chosen with consultation of instructor. May be repeated for credit when topic varies. PREREQUISITE: Permission of instructor.

7204-8204. History of Music Theory. (3). Development of theoretical concepts of music found in treatises and textbooks, dating from 550 B.C. to 1937 A.D.

7260-69-8260-69. Special Topics in Theory and Composition. (1-3). Selected topics in theory or composition. May be repeated with change of topics.

7501-8501. Composition. (2, 3 or 6). Free composition in all forms. Applicants to this course are required to submit original works in various forms and media as proof of maturity and technical preparation for graduate work. The course may be repeated with the instructor's permission for successive semesters.

Composition is taught as applied music. Students receive the equivalent of two half-hour lessons per week. The fee for this instruction is \$60.

7502-8502. Electronic Compositional Techniques. (3). Emphasis on tape manipulation, synthesizer operation, and recording techniques in association with individual compositional projects. May be repeated for credit with permission of instructor.

†7599-8599. Composition Practicum. (3-6).

7699. Media Production Practicum. (3).

7801. Studies in Jazz and Commercial Music. (3). Directed individual or class study in selected areas in consultation with instructor. May be repeated with change of topic for a maximum of 9 hours.

†7999. Thesis. (3-6).

†8999. Dissertation. (1-9).

† Grades of S, U, or IP will be given.

K304 MUSIC HISTORY AND LITERATURE (MUHL)

6001. Piano Repertory. (3). Survey of stringed keyboard repertory from Bach and his contemporaries

to the present. Representative works analyzed in regard to historical, stylistic, formal and aesthetic features.

6002. Song Repertory I. (3). Italian repertory of the 17th century to the present. Comprehensive study of the music and poetry of the Germany *Lied*. Recital planning.

6003. Song Repertory II. (3). Development of the French *melodie*. Nationalist Schools. English Song from Baroque to present. The American song with emphasis on 20th Century literature.

6004. Survey of Chamber Music for Piano. (3). Development of works for piano and one other instrument, piano trios, piano quartets and quintets; stylistic analysis of works from classic, romantic, impressionistic, early 20th century, and avant-garde repertory. PREREQUISITE: permission of instructor.

6005. History and Literature of the Organ. (3). Literature for the organ and its effect on and interaction with organ design.

6260-69. Special Topics in Music History. (1-3). Selected topics in Music History. May be repeated with change in topic.

6407. The Opera and the Music Drama. (3). A survey of the opera before Richard Wagner; study of Wagner's music dramas and opera of his contemporaries; dramatic and musical significance of each phase of the development of the two forms. PREREQUISITE: Permission of the instructor.

6500. String Repertory. (3). Histories, tests, methods, periodicals, orchestral studies, and solo and ensemble literature.

6800. World Musical Styles. (3). Musical styles and the role of music performance in preliterate and folk societies throughout the world.

6801. American Folk and Popular Music. (3). Folk and popular elements in American music. The role of mass media, especially the phonograph record, in utilizing and changing folk music. The historical development and interrelationships between various musical styles ranging from nineteenth century minstrelsy to the roots of rock and roll. Emphasis on southern Anglo-American and Afro-American folk and popular musical styles.

6802. Studies in American Folk and Popular Music. (3). The characteristics and development of a particular form of American folk or popular music. May be repeated for credit when the topic varies.

002. BLUES

006. HISTORY OF ROCK AND ROLL MUSIC

007. HISTORY OF JAZZ

009. MEMPHIS MUSIC

7260-69-8260-69. Special Topics in Music History. (1-3). Selected topics in Music History. May be repeated with change of topic.

†7301. History of Music to 1700. (3). Principal events in the evolution of the techniques of Western musical composition, music theory, aesthetics, and musical styles. May not be used to apply to degree requirements in any major in the M.M., or the D.M.A. (with the exception of the concentration in Ethnomusicology). May be used by students in the M.A. program and the D.M.A. in Ethnomusicology (Regional Studies) with permission of the major professor and the coordinator of music history division.

†7302. History of Music since 1700. (3). Continuation of MUHL 7301. The same restrictions apply.

7400-8400. Bibliography and Research Methods. (3). Survey of the fields of historical and systematic investigation in music with bibliographical studies and research analysis. Required of all students who intend to write a thesis.

7407-8407. Studies in Music History. (3). May be repeated for credit when topics vary. Topics may be selected from the following: Sonata History, Opera History, 19th Century Art Song; The Polyphonic Mass to 1800; Cantata History; Symphony History; Brahms; Mozart; Bach; Beethoven; Debussy-Ravel; Schoenberg-Stravinsky; Chamber Music.

001. DEBUSSY-RAVEL

002. CHAMBER MUSIC

004. STRAVINSKY-SCHOENBERG

7408-8408. Studies in Musicology. (3-6). Independent investigation of a research problem, or directed reading in selected areas of musicology chosen in consultation with the instructor. May be repeated for credit with change of topic. PREREQUISITE: Permission of the instructor.

7800-8800. Field Methods in Ethnomusicology. (3). An exploration of techniques for designing field research subjects and gathering information in the field. Special attention will be given to techniques and problems related to the study of southern musical traditions.

7802-8802. Seminar in Ethnomusicology. (3). Seminars in selected topics. May be repeated for credit when the topic varies.

7803-8803. Individual Research in Ethnomusicology. (3). Individual research on a selected topic under faculty supervision. May be repeated if the topic varies. Only 3 hours credit may be applied toward a master's degree and only 6 hours credit toward a doctoral degree.

7804-8804. Internship in Southern Regional Music. (3). Practical experience in the application of knowledge and skills learned through the study of Southern regional music. The student will do supervised work in an area of music production, presentation, administration, or education for a public agency or in the private sector. This course may be repeated with a different type of internship, but only 3 credit hours may be applied toward any degree. PREREQUISITE: 18 credit hours in Ethnomusicology or Southern Regional Music.

†7999. Thesis. (3).

8801. Ethnomusicology. (3). A survey of concepts, problems, and methods of research in the interpretation of music in different social groups. Emphasis will be placed on functional and popular music rather than art music, and on cultures other than Western European and North American.

8805. Transcription and Analysis in Ethnomusicology. (3). An examination of the problems and methods of transcribing and analyzing non-Western and traditional music; the uses and limitations of staff notation; alternative descriptive systems.

8806. Seminar in Southern Regional Music. (3). Major issues in the study of southern folk and popular music. Among the topics will be the relationship between Afro-American and Anglo-American styles and traditions, the relationships of these styles and traditions to African and European music, and the interplay of traditionalism and commercialism in southern music. PREREQUISITES: Completion of 18 graduate level credit hours in music, including MUHL 7400 and MUHL 6801.

†8999. Dissertation. (1-9).

†Grades of S, U, or IP will be given.

K316 SACRED MUSIC (MUSA)

6104. Sacred Music in History and Practice I. (3). Jewish and Christian sacred music, exploring origins of styles, traditions, and current practices. This course may NOT be used as part of Sacred Music core.

6106. Children's Choirs in the Church. (3). Organization and development of children's choir program; rehearsal techniques; literature; vocal development; recruiting; contemporary approaches.

6260-69. Special Topics in Sacred Music. (1-3). Selected topics in Sacred Music. May be repeated with change of topic.

6801. Individual Studies in Sacred Music. (1-3). Directed individual study in selected areas of music chosen in consultation with instructor. May be repeated for credit with permission of department chair. Maximum of 9 hours credit allowed.

7001. Oratorio and Cantata. (3). A study of the larger musical forms of the Church with performances by performing majors. An analytical study of style in performance and in content with suggested use of instruments in addition to the organ. PREREQUISITE: Graduate standing in music.

7801-8801. Studies in Sacred Music. (1-3). Directed individual or class study in selected areas of music chosen in consultation with instructor. May be repeated for credit with permission of department chair. May be repeated for a maximum of 9 hours credit.

K313 MUSIC EDUCATION (MUSE)

6001. Orff-Schulwerk for Classroom Teachers I. (3). Broad, practical introduction to use of Orff-Schulwerk approach to elementary music teaching. Development

of performance leadership skills stressed. Not open to music majors.

6002. Orff-Schulwerk for Classroom Teachers II. (3). Second level Orff course for non-music majors. Emphasis on teaching process, children's folk materials, rhythmic and melodic training, development of lesson plans, and Orff instruments. PREREQUISITES: successful completion of MUSE 6001.

6201. Individual Studies in the Teaching of Music. (1-3). Individual study of problems and opportunities faced by those who teach music in the schools; for classroom teachers, music teachers, supervisors, principals, and administrators. May be repeated for up to 6 hours credit.

6205. Marching Band Techniques. (2). Organizing and conducting the marching band; gridiron charting and marching procedures with a study of precision drill, formation, and pageantry.

6206. Music for Exceptional Children. (3). A review of the types of exceptional children and the implications for providing realistic musical activities in the classroom. Emphasis will be placed on the use of music as a tool in reaching non-musical goals such as language development, social adjustment, motor coordination, aural and visual perception. (Team-taught with Special Education).

6208. Band Literature. (3). History and evolution of wind instruments and wind instrument playing; history and development of the wind band and its literature, with general background material on the specific composers involved.

6209. Piano Tuning and Repair. (2). Basic techniques involved in piano tuning and adjustment. Some basic tools are required.

6260-69. Special Topics in Music Education. (1-3). Selected topics in Music Education. May be repeated when topic changes.

6501. Basic Piano Pedagogy. (3). Emphasis on elementary piano methods including Pace, Suzuki, and class techniques. PREREQUISITE: permission of instructor.

6505. Principles of Accompanying. (3). Performance class involving practical study of instrumental and vocal standard repertoire and problems of ensemble playing; encourages facility in sight-reading and the ability to assimilate music rapidly, score-reading, transposition, and figured-bass realization are introduced as skills necessary to well-rounded musicianship. PREREQUISITE: Permission of instructor.

6506. Introduction to Suzuki Talent Education for Strings. (3). Required of students who plan to serve as apprentice string teachers in the MSU Suzuki Talent Education program. Basic instruction in the Suzuki philosophy; participation with parents and children in Suzuki string classes.

6508. Principles of Suzuki Piano. (3). Suzuki philosophy as applied to the development of the child's abilities and the role of the teacher and the parent. Analysis of the technical and musical instruction of the beginning piano student. PREREQUISITE: Undergraduate upper-division piano proficiency.

6509. Suzuki Violin Literature and Techniques. (3). Literature and technique of Suzuki Violin School; fundamental technique, development of posture, tone, and listening ability in beginning students; analysis of pedagogical material. Required of students who plan to serve as apprentice teachers in the MSU Suzuki String Program. PREREQUISITE: MUSE 6506.

6510. Advanced Suzuki String Pedagogy. (3). Continuation of literature and technique taught in Suzuki Violin School; emphasis on development of advanced student; laboratory experience in MSU Suzuki String Program. Required of students who plan to be apprentice teachers in MSU Suzuki String Program. PREREQUISITE: MUSE 6509.

6511. Class Piano Pedagogy. (3). Survey of group instruction techniques in the teaching of beginning, intermediate, and early advanced piano. Emphasis on observation and practical application. For piano majors and/or prospective piano teacher. PREREQUISITE: Upper division level in keyboard or permission of instructor; Basic Piano Pedagogy or equivalent recommended.

6512. Jazz Pedagogy for Music Educators. (3). Design and implementation of comprehensive jazz curriculum for secondary or college level; teaching

methodology in all disciplines of jazz idiom. PREREQUISITE: advanced standing, permission of instructor.

6801. Teaching Music Comprehensively. (3). A methods course designed to bring music theory, history, literature, performance, composition, and analysis to bear on the teaching of music at any level — elementary, junior high, high school, college, and private studio.

6802. Level I Orff-Schulwerk. (1-3). Basic Orff-Schulwerk techniques including body movement, soprano recorder, percussion, vocal performance, improvisation, and arranging. PREREQUISITE: Graduate standing in Music.

6811. Orff-Schulwerk for Music Specialists. (3). Experiences in Orff-Schulwerk through singing, rhythmic training, movement, improvisation, and instruments. Open to music majors and specialists only.

7103. Level II Orff-Schulwerk. (1-3). (6803). Intermediate level Orff-Schulwerk techniques including modal harmonization, irregular rhythms, alto recorder, performance, and more extensive improvisation and arranging. PREREQUISITE: MUSE 6802 or the equivalent.

7104. Level III Orff-Schulwerk. (1-3). (6804). Advanced Orff-Schulwerk techniques including original compositions, complex form, movement and instrumental arrangements, tenor and bass recorder performance, and advanced improvisation. PREREQUISITE: MUSE 7103 or the equivalent.

7202-8202. Music in Early Childhood. (3). Experimental and traditional music activities and teaching strategies designed to integrate the world of formal and informal sound into the three to six-year old's life. Open to all College of Education majors.

7203-8203. Choral Literature and Techniques. (3). Survey of choral literature from Dunstable to the present, using scores, records, and class performance. Analysis of the scores in terms of style, form, and performance problems. Techniques of teaching and conducting unfamiliar styles.

7204-8204. Instrumental Literature and Techniques. (3). Specific and intensive research in each student's major instrument, covering (1) history of the instrument, (2) tests, methods and periodicals, (3) orchestral studies, (4) solo and ensemble literature, and (5) listening and performance.

7207-8207. Tests and Measurements in Music Education. (3). The investigation of evaluative tools in music education, formulation and utilization of measurement devices in music teaching and research.

7208-8208. Administration and Supervision of Music. (3). An integrating course which involves the administrative considerations basic to all facets of music education programs, K-12. Objectives, organization, staffing, financing, facilities, public relations. Federal programs. Includes laboratory field experience.

7210-8210. Projects in Elementary Music Curriculum Development, Implementation and Supervision. (3). Individualized in-depth study of a selected area in elementary school music education. Topics may include curriculum, program planning and development, evaluation of current practices, exploration of new or related fields. PREREQUISITE: Permission of instructor.

7211-8211. Projects in Secondary Music Curriculum Development, Implementation and Supervision. (3). Individualized in-depth study of a selected area in secondary school music education, vocal or instrumental. Topics may include curriculum, program planning and development, evaluation of current practices, exploration of new or related fields. PREREQUISITE: Permission of instructor.

7213-8213. Orchestration for Orff Instrumentarium. (3). An analysis of techniques used to orchestrate for Orff instruments as done in Europe, Asia, North and South America; original orchestrations in the elemental Orff style. PREREQUISITE: MUSE 4803-6803 or permission of instructor.

7214-8214. Master Class in Orff-Schulwerk. (2). Advanced pedagogy based on Orff-Schulwerk principles; designed to train workshop clinicians. Training includes orchestration techniques, ontogenetic treatment of rhythm and melody, movement improvisation and recorder playing. PREREQUISITE: MUSE 4804-6804 or equivalent experience.

†7215. **Internship in Orff-Schulwerk. (3).** A laboratory experience for the student, with assignment to a local elementary school where he will work with an Orff-trained music specialist. The student will be asked to design a specific project capable of being completed in a semester's time. The project will be supervised and evaluated by a faculty member in the elementary music education department.

7260-69-8260-69. **Special Topics in Music Education. (1-3).** Selected topics in Music Education. May be repeated when topic changes.

7301. **Choral Arranging. (3).** Problems of arranging music for various choral groups: K-6, junior high, and senior high; 3- and 4- part women's and men's choruses; mixed choruses.

7402-8402. **History and Philosophy of Music Education. (3).** An examination of the historical and philosophical foundations which underline the curricula and instructional programs in music.

7403-8403. **A Survey of Research in Music Education. (3).** Designed to acquaint students with theoretical and practical field research; to refine writing skills; to hypothesize and to develop potential research problems.

7501-8501. **Vocal Pedagogy I. (3).** Processes in voice production, respiration, phonation, articulation, resonance. Psychological, physiological, and acoustical problems. Voice classification, quality, diction, breath support, breath control.

7502-8502. **Vocal Pedagogy II. (3).** A study of different approaches to the teaching of voice including the observation of faculty members instructing students. Assignment of students to each member of the class for supervised teaching. PREREQUISITE: MUSE 7501.

7504-8504. **Suzuki Piano Literature and Technique I. (3).** Analysis of the technique and musicianship to be taught to the Suzuki student in the first four volumes of the literature; particular emphasis on understanding the developmental process of achieving good tone, finger strength, hand position, and rhythmic and musical sense, both aural and written. Supervised teaching practicum. PREREQUISITE: MUSE 6508 or permission of instructor.

7505-8505. **Suzuki Piano Literature and Technique II. (3).** Continuation of Techniques I to cover the advanced technique and understanding of musical styles required for the literature in Vol. 5 and 6 and supplementary material. Teaching with supervision of Suzuki Piano Coordinator. PREREQUISITE: MUSE 7504 or permission of instructor.

7506-8506. **Projects in Suzuki Teaching. (3).** Individually assigned projects involving teaching under supervision; application of the knowledge acquired in the classroom.

7507-8507. **Brass Pedagogy. (3).** Teaching of brass instruments to junior and senior high school students; materials and methods covering problems unique to brass.

7508-8508. **Percussion Pedagogy. (3).** Pedagogical and technical aspects of percussion instruments. Emphasis on analysis of performance problems to provide pedagogical insight, not technical proficiency, on all percussion instruments.

7509-8509. **Woodwind Pedagogy. (3).** Pedagogical and technical aspects of woodwind instruments; materials and methods for each woodwind instrument; embouchure, breathing, tone, production, intonation, dynamics, care and repair.

7511. **Projects in Piano Pedagogy. (3).** Individual projects designed to explore problems of teaching under supervision. May be repeated for credit when the topic varies. PREREQUISITE: permission of instructor.

†7999. **Thesis. (3-6).**

†8999. **Dissertation. (1-9).**

† *Grades of S, U, or IP will be given.*

K318 APPLIED MUSIC (MUAP)

6260-69. **Special Topics in Applied Music. (1-3).** Selected topics in Applied Music. May be repeated with change of topics.

6801. **Individual Studies in Applied Music. (1-3).** Directed individual instruction in an applied area not

listed under the MUAP course prefix. May not exceed 6 hours credit.

*7001. **Large Graduate Ensemble. (1).**

- 001. WIND ENSEMBLE
- 002. ORCHESTRA
- 003. OPERA CHORUS
- 004. ORATORIO CHORUS
- 008. CONCERT BAND
- 009. OPERA WORKSHOP
- 010. UNIVERSITY SINGERS
- 011. JAZZ ENSEMBLE

*7002. **Chamber Music. (1).**

*7003. **Small Graduate Ensemble. (1).**

- 002. COLLEGIUM MUSICUM
- 003. STRING ENSEMBLE
- 004. BRASS ENSEMBLE
- 005. PERCUSSION ENSEMBLE
- 006. WOODWIND ENSEMBLE
- 007. CONTEMPORARY CHAMBER PLAYERS
- 008. OPERA SOLOISTS
- 009. CAMERATA SINGERS
- 010. ORFF ENSEMBLE
- 011. JAZZ COMBO
- 012. CHAMBER MUSIC FOR PIANO
- 013. JAZZ VOCAL

* *May be repeated for credit.*

7099. **Chamber Music Recital. (1).**

7260-69-8260-69. **Special Topics in Applied Music. (1-3).** Selected topics in Applied Music. May be repeated with change of topic.

7620-8620. **Independent Study in Symphonic and Operatic Conducting. (3).** Detailed study of advanced conducting techniques including styles, mechanics, score reading and preparation, and rehearsal techniques and organization. Practical experience in orchestral and operatic conducting. May be repeated for credit. PREREQUISITES: MUAP 7701 and/or permission of instructor.

7623-8623. **Independent Study in Opera and Musical Theatre Production. (3).** A detailed study of production to include choosing of repertoire, translations, budget planning, casting, obtaining of materials, and promotion. Practical experience in the technical aspects of opera and musical theatre. (May be repeated for credit.) PREREQUISITE: Permission of instructor.

†7699-8699. **Production Practicum. (3-6).** Required of majors in Opera and Conducting and Opera Production and Directing.

7701-8701. **Advanced Conducting. (3).** Conducting the concert band, the symphony orchestra, and the chorus in the larger musical forms. Emphasis on interpretation. May be repeated for credit. PREREQUISITE: Permission of instructor. \$60.00 instruction and lab fee.

†7899-8899. **Lecture Recital. (3).** Student must be concurrently enrolled in an appropriate applied music course. All policies relating to dissertations are applicable to lecture recitals.

†7901-8901. **Lecture Recital Research. (1-3).** Preparation of research document from which material for lecture recital is to be drawn. Topics to be approved by major professor and appropriate division coordinators.

†7999-8999. **Recital. (1-3).** Student must be concurrently enrolled in an appropriate applied music course.

8002. **Seminar in Performance Problems. (3).** The study of literature and material for the performances necessary to prepare for the qualifying examination. Preparation of the dissertation recitals. PREREQUISITE: Admission to curriculum in performance. May be repeated for credit.

† *Grades of S, U, or IP will be given.*

(INDIVIDUAL LESSONS)

FEEs: See Chapter 3 of this bulletin. Fees are paid to the University at the office of the Business Manager.

CREDITS AND GRADES: A full hour lesson will be given all persons enrolled in graduate applied music, regardless of credit-hours awarded. Music Education majors, applied music minors, and applied music electives will be allowed to register for two hours of credit only. Applied majors may register for two to six hours of credit, as permitted. Grades are awarded in accordance with the jury system and have the same significance as in any other subject. All graduate applied music juries shall be scheduled for fifteen minutes.

REGISTRATION: Students will register for individual lessons at the same time and the same manner that they register for other courses.

Instrument	Music Education Majors, Applied Music Minors, Applied Music Electives. No Recital Required 1-2 Hours Credit	Applied Music Majors Applied Music Minors, Applied Music Electives. Recital Required 2-6 Hours Credit
Trumpet	6111	7111/8111
Horn	6121	7121/8121
Trombone	6131	7131/8131
Tuba	6141	
Piano	6311	7311/8311
Harpsichord	6321	7321/8321
Organ	6331	7331/8331
Percussion	6411	7411/8411
Violin	6511	7511/8511
Baroque Violin	6512	7512/8512
Viola	6521	7521/8521
Cello	6531	7531/8531
Bass	6541	7541/8541
Guitar	6551	7551/8551
Harp	6561	7561
Viola da Gamba	6571	7571
Voice	6611	7611/8611
Flute	6711	7711/8711
Oboe	6721	7721/8721
Clarinet	6731	7731/8731
Saxophone	6741	7741/8741
Bassoon	6751	7751/8751
Recorder	6761	

Individual Lessons may be repeated for credit in subsequent semesters, but not for the purpose of improving the grade originally earned.

THEATRE AND COMMUNICATION ARTS

JOHN P. BAKKE, Ph.D., *Chair*

Room 143, Theatre and Communication Arts Building

MICHAEL M. OSBORN, Ph.D., *Coordinator of Graduate Studies*

1. The Department of Theatre and Communication Arts offers graduate programs leading to the Master of Arts Degree in Communication with concentrations in: (1) Communication Studies, (2) Radio-TV-Film Production, (3) Theatre; and the Master of Fine Arts degree in Theatre.

II. M.A. Degree Program

A. Program Requirements

1. Successful completion of a minimum of 36 hours of graduate courses, or completion of a minimum of 30 hours of graduate credit including a thesis or practicum; 70% of the minimum must be at the 7000 level or above. Permission to pursue the thesis or practicum option must be obtained from the Departmental Graduate Studies Committee.

2. All students choosing the thesis option must take 7330, Introduction to Research in Communication.

3. All students choosing the non-thesis option must complete 7993 or 7994, Special Problems, in their last semester.

4. All M.A. students must take the following core courses: 7331, Seminar in Communication Theory, and 7360, Seminar in Rhetorical Theory.

5. Students with a concentration in Radio-TV-Film Production must take at least 3 credits of 6892 Film and Video Production, and may be required by their Advisory Committee to complete 7995, Production Practicum.

6. Students with a concentration in Theatre must take the following courses: 7521, Stage Direction; 7564, Principles of Scenography; 7581, Seminar in Dramatic Theory and Criticism; and 7582, Analysis of Dramatic Literature.

7. No more than six hours outside the Department may be applied to the minimum hour requirement.

III. M.F.A. Degree Program

A. Program Admission

In addition to meeting University admission requirements, the applicant must also meet MFA Theatre Faculty academic and artistic standards. Contact Director of Theatre for Departmental Application Form.

1. An overall undergraduate grade point average of at least 2.5 from an accredited undergraduate institution.

2. A grade point average of at least 3.0 in the undergraduate major.

3. Acceptable scores on the Graduate Record Examination or the Miller Analogies Test.

B. Program Requirements

1. Successful completion of a minimum of 54 semester hours of graduate credit, of which no more than 16 may be at the 6000 level.

2. All students in the program must take the following core courses: THEA 7521, Stage Direction; 7564, Principles of Scenography; 7581, Seminar in Dramatic Theory and Criticism; and 7582, Analysis of Dramatic Literature.

3. Satisfactory completion of a major artistic production practicum.

4. Satisfactory completion of and Advisory Committee-approved internship in a professional setting. If taken for credit, internship hours may not be applied to the 54-hour minimum requirement for the degree.

5. Satisfactory performance on written and oral comprehensive examinations as administered by the student's committee.

C. Admission to Candidacy

The student may apply for admission to the M.F.A. degree candidacy upon successful completion of 18 semester hours. To be approved for admission to candidacy the student shall have:

1. Completed all remedial work required by the Advisory Committee.

2. Demonstrated an acceptable level of competence through a qualifying artistic project approved by the student's Advisory Committee.

3. Filed a Plan of Study which meets all departmental and graduate school requirements.

IV. Program Procedures for M.A. and M.F.A. Degree

A. Initial Advising

Before enrolling as a major in any graduate course, the student must meet with the Coordinator of Graduate Studies, and with the Director of Theatre or Director of Communication Studies (depending upon area in which degree is desired). These interviews will determine initial registration, the general direction of the student's program, and the kind of remedial work which may be required.

B. Advisory Committee

Before nine weeks of the first semester have been completed, or before completing nine hours in a part-time program, the student's advisory committee will hold its initial meeting. The committee must include three members of the graduate faculty, one of whom is designated as chair. The Committee shall have four major functions:

1. To complete and approve the Plan of Study which determines the student's concentration area. This will normally be the major business of the first meeting.

2. To review academic progress, and, after the completion of 15 hours or two semesters of part-time graduate work, to determine whether the student may continue in the program.

3. To approve a request to elect the thesis option (M.A.) or approve the production practicum proposal (M.A./M.F.A.). The student should submit a thesis/practicum proposal to the Committee according to the specifications provided by the department.

4. To administer comprehensive examinations.

K493 COMMUNICATION (COMM)

6011. Communication in Organizations. (3011).

(3). Information flow, communication systems, and communication breakdown in contemporary organizations. Emphasis on business, governmental and institutional structures.

6013. Communication in Political Campaigning. (3013).

(3). Forms and effects of communication between politicians and constituencies with emphasis on campaign rhetoric via the mass media, debates, model speeches, etc.

6210-19. Special Topics in Communication Studies. (1-3). Topics are varied and announced in *Schedule of Classes*. May be repeated for maximum of 9 hours when topic varies.

6220-29. Special Topics in Film. (1-3). Topics are varied and announced in *Schedule of Classes*. May be repeated for maximum of 9 hours when topic varies.

6341. Interpersonal and Small Group Communications. (3). Advanced theory in the logical, psychological, and sociological investigation of issues in small groups.

6360. History and Criticism of Public Address. (3). Survey and analysis of speeches and speakers vital to social, political, and cultural movements in Western Civilization. Subjects may be drawn from ancient to contemporary times. May be repeated for maximum of 6 hours.

6373. Interracial Communication. (3). The social problems encountered in communication between blacks and whites. Readings, discussion, and field study on how prejudice, stereotypes, and self-concepts can affect communication. Exploration of rhetorical methods to minimize these problems.

6375. Intercultural Communication. (3). Communicative interactions and functions between and among people with different national/cultural backgrounds.

6704. Theories of Communication. (3). Comparison of theories offered to explain the character or effects

of mass communication media ranging from Stimulus-Response Theory to Agenda-Setting Theory.

†6802. Internship. (1-3). Field studies in communication; supervised practical work with government institutions, private business, film company, or broadcast and electronic media firm; written analysis of experience required. May be repeated for a maximum of 6 semester hours. PREREQUISITE: Permission of instructor.

6810. Broadcast Regulation and Program Policy. (3). Effects of F.C.C. and other governmental regulations on broadcasting and electronic media management and operations; licensing, renewals, content control, politics, and copyright. PREREQUISITE: COMM 3800.

6811. Radio and Television Programming. (3). Analysis of individual program formats (with examples); use of this information along with ratings and other audience research to study the design of program schedules. PREREQUISITE: COMM 3800.

6812. Communications Law in the Performing Arts. (3). Artist, performer, management contractual relationships; acquisition, copyright and disposition of literary and audio-visual properties; production and distribution agreements; advertising law and other matters for TV, motion picture, radio and stage businesses.

6824. Cinematography/Videography. (3). Art of visual interpretation with a strong concentration in the theory and techniques of lighting. Experience with professional film and video cameras and lighting equipment. PREREQUISITE: COMM 3824.

6825. Editing of Film and Video Tape. (3). Techniques of editing single and double system film and video tape. An overview of the total postproduction process with concentration primarily on the aesthetics of continuity. PREREQUISITE: COMM 3823 and COMM 3824.

6831. Broadcast and Cable Sales and Advertising. (3). Relation of broadcasting and cable sales and advertising to networks, station representatives, and salespeople; role of sponsors, agencies, and allied groups.

6841. Television Workshop. (1-4). Production of television programming for local cablecasting. May be repeated for a maximum of 8 semester hours; repetition will not result in change of any grade previously given. PREREQUISITE: COMM 3842 or permission of instructor.

6842. Television Studio Production II. (4). Advanced training in TV studio/multiple camera techniques. Extensive production work. PREREQUISITE: COMM 3842.

6850. Film History I. (3). (6852). Historical survey of motion pictures from medium's pre-history to 1940. Emphasis on narrative film.

6851. Film History II. (3). Historical survey of major movements, genres, and themes in narrative film from 1940 to 1960.

6853. Documentary Form in Film. (3). Development of non-fiction film as rhetorical and expressive form. Analysis of individual films, genres, and filmmakers.

6854. Documentary Form in Broadcasting. (3). History and criticism of non-fiction broadcasting and cablecasting.

6856. Women and Film. (3). Women as performers, viewers, subjects, and creators in American and international film.

6857. History of Broadcast and Electronic Media. (3). Comprehensive history of broadcast and electronic media as developed from 1895 to present. PREREQUISITE: COMM 3800.

6858. Contemporary Cinema. (3). Major themes and styles in international and American narrative film from 1960 to present.

6871. Broadcast and Cable Management. (3). Theories of management; special problems and situations confronting managers of broadcast and cable outlets, including personnel, engineering operations, programming, and sales functions. PREREQUISITE: COMM 3800.

6891. Producing and Directing for Film and Videotape. (3). Research and script preparation; budgeting and production management; working with actors and crew.

6892. Film and Video Production. (1-3). Workshop for film and video production. Students write, produce, direct, or assume crew responsibilities on productions. May be repeated for a maximum of 6 credits. See departmental guidelines for independent production requirements and procedures. **PREREQUISITE:** COMM 3824 or permission of instructor.

6922. Directing the Forensics Program. (3). Designed for the teacher charged with the responsibility of developing and directing interscholastic or inter-collegiate competitive speech programs; the historical background for such programs, organizing techniques, recruiting, tournament direction, and other related concerns.

6960. Documentary Writing. (3). Writing for non-fiction media programs.

6970. Screenwriting. (3). Writing for fiction film and television. Basic dramatic theory, narrative structure, characterization, dialogue, adaption and unique demands of audio/visual media.

7013-8013. Seminar in Political Communication. (3). Study of research pertaining to variables in political communication, such as debates, commercials, consultants, ethics, coverage. Repeatable for 9 hours.

7101-8101. Seminar in Rhetorical Style. (3). Role of style in contemporary persuasive discourse. Repeatable for 9 hours.

7210-19-8210-19. Special Topics in Communication Studies. (1-3). Topics are varied and announced in *Schedule of Classes*. May be repeated for maximum of 9 hours when topic varies.

7321. Communication Theory. (3). Theories, models, and approaches to study of communication.

7330-8330. Introduction to Research in Communication. (3). Survey of research in communication; emphasis on quantitative methods. Practical experience in research and data analysis.

7331-8331. Seminar in Communication Theory. (3). Specific topics, issues, and research in communication theory. Repeatable for 9 hours.

7332-8332. Seminar in Communication Research. (3). Communication research methods. Repeatable for 9 hours.

7350. Rhetorical Theory. (3). Development of rhetorical theory from c. 500 B.C. to present.

7360-8360. Seminar in Rhetorical Theory. (3). Research on concepts and hypotheses of theory of rhetoric; direction and discussion of independent work on rhetorical variables. Repeatable for 9 hours.

7362-8362. Seminar in Public Address. (3). Intensive study of selected topics in the analysis and criticism of public arguments. Emphasis on cross-cultural comparison of arguments and appeal in common rhetorical situations. May be repeated for a maximum of 6 credits.

7369-8369. Seminar in Organizational Communications. (3). Selected variables of organizational communication with emphasis on methods of analyzing and auditing communication within the organizational setting. Repeatable for 9 hours.

7371. Rhetorical Criticism. (3). (6371). Theories and perspectives for evaluating the art, ethics, and effects of messages in social and cultural contexts.

7374. Independent Studies in Communication Arts. (1-3). Independent research in areas of special interest including rhetoric, radio, television, and film. **PREREQUISITE:** Permission of the instructor.

7381-8381. Orality and Culture. (3). Meaning of literacy as it applies to communication in pre-literate, literate, and post-literate eras.

7802-8802. Seminar in Film History. (3). Intensive study of selected periods, genres, or filmmakers with emphasis on independent research project. Repeatable for 9 hours.

7804-8804. Seminar in Media Theory and Criticism. (3). Major critical approaches to media form and content; emphasis on film and television. Repeatable for 6 hours.

7805-8805. Seminar: Literature of Mass Communication. (3). Literature of mass communications. Topic area will vary each time offered. May be repeated for a maximum of 6 hours credit.

7806-8806. Seminar: Trends in Mass Communication. (3). Critical issue or issues facing communications today. Topics will vary each time offered. May be repeated for a maximum of 6 credits.

7808-8808. Seminar: Mass Communication and Society. (3). Interrelationships between mass communications, the individual and society. Topics will vary each time offered. May be repeated for a maximum of 6 credits.

7809-8809. Seminar in Communication History. (3). Selected topics in history of communication, including public address, film, broadcasting, and electronic media.

7811-8811. Seminar in Telecommunications Policy. (3). Social, economic and legal issues relating to use and governance of telecommunications industries; emphasis on public policy options available, and capability of existing policy-making institutions to mediate between conflicting international, national and industry interests.

7991-8991. Seminar in Comparative Media. (3). To demonstrate through intensive analysis what happens to the form and content of a creative work in its various adaptations: novel, condensation, stage, movie, and television. Open to all Theatre and Communication Arts majors and English majors.

K491 THEATRE (THEA)

6210-19. Special Topics in Theatre. (1-3). Topics are varied and announced in *Schedule of Classes*. May be repeated for maximum of 9 hours when topic varies.

6401. Interpretation of Children's Literature. (3). Adaptation of literature for individual and group performances in children's theatre and its use for instruction in elementary and secondary schools. Topics include: styles of literature, principles of performance, and techniques for performance adaptation. May be repeated for a maximum of 6 hours with permission of instructor. Offered alternate years.

6441. Performance Repertory. (3). Group performance in dramatic and narrative theatre styles; dance and theatre movement. Repeatable for a maximum of 9 hours. **PREREQUISITE:** Prospective students must audition for and be cast in Memphis Moving Line Company.

6457. Interpretive Styles. (3). Exploration of performance style as it evolves from language, structure, and style of the literary text. Materials for performance will vary each semester and may alternate among the genres of prose fiction, poetry, and period drama. Repeatable for a maximum of 9 hours when topic varies. Offered alternate years. **PREREQUISITE:** Permission of instructor. Offered alternate years.

6501. Advanced Movement Styles. (3). Further development of technique and refinement of personal as well as period styles. Offered alternate years.

6502. Ensemble Movement. (3). The performance troupe blends improvisational techniques, voice, mime, acting, and physical movement. **PREREQUISITE:** Permission of the instructor. Offered alternate years.

6503. Creative Dramatics. (3). Basic techniques and theories for the use of dramatization in elementary and secondary education. Topics include socio-drama, dramatization of school subjects and daily concerns, and improvisation and creation of dramatic plays.

6515. Scene Painting. (3). Lecture-laboratory course covering the techniques of painting scenery for the stage. Offered alternate years.

6516. Technical Direction. (3). Lecture/laboratory for theatre technicians to include production organization and safety, engineering, rigging, materials control and supply ordering. Offered alternate years.

6523. Children's Theatre. (3). Theories and styles of children's theatre, application of principles to problems in production and preparation of plays designed for children's audiences. May be repeated for a maximum of 6 hours with permission of instructor.

6531. Acting Styles. (3). The development of acting styles as influenced by the environments of historical periods. Offered alternate years.

6532. Advanced Acting Styles. (3). Continued work in acting styles. Offered alternate years.

6550. Technical Production Studio. (3). Study and application of technologies, materials, and techniques of theatrical production. Semester topics will alternate among the areas of theatre technology, lighting and sound, and costuming. Repeatable for a maximum of 9 hours when topic varies.

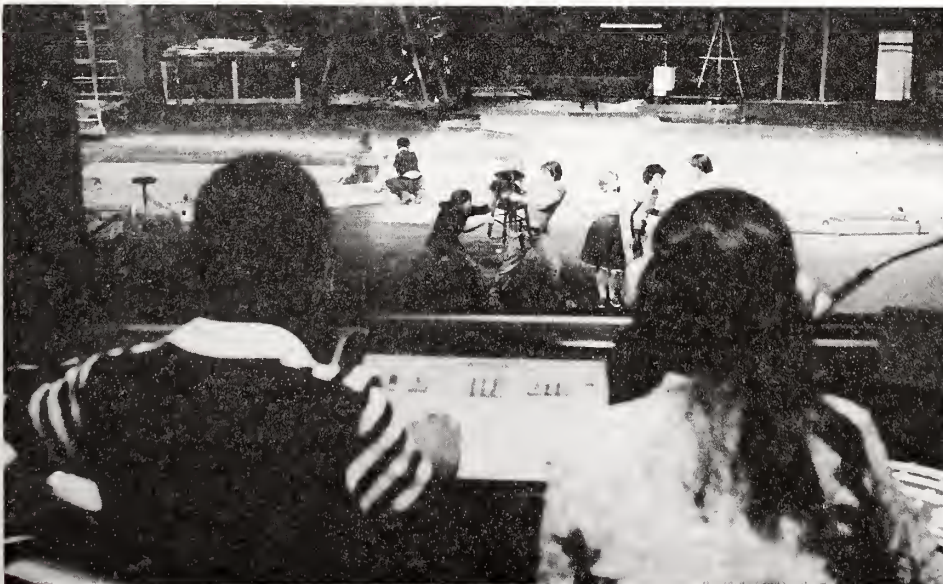
6551. Theatre History — Classic. (3). Shaping forces and theatrical forms in Western civilization from Greek times to Romanticism. Offered alternate years.

6552. Theatre History — Modern. (3). Continuation of 6551 to the present. Offered alternate years.

6554. Costume History. (3). Survey of clothing fashions from primitive times to present; special emphasis on psychological implications of fashion change applicable to theatre. May be repeated for a maximum of six hours. Offered alternate years.

6571. Playwriting. (3). Theory and principles of writing plays for the stage. Practice in writing either the short or long play. Offered alternate years.

6592. Theatre Architecture & Facilities Planning. (3). Processes and techniques employed by theatre planners in design and construction/renovation of theatrical spaces and structures. Includes survey of theatre forms, historical development of theatrical structures and spaces, programming methods and procedures, specification, renovation techniques, multi-use structure concepts, and consultation procedures and practices. Offered alternate years. **PREREQUISITE:** Permission of instructor.



6595. Theatre Sound. (3). Technical and theoretical principles, equipment, operational techniques, systems design, creative design processes, and aesthetics for theatre sound; application of traditional and contemporary techniques and equipment. Research, project work, and realized sound designs required. Offered alternate years.

6631. Acting for Film and Television. (3). Educational experience for the actor in the media of film and television, concentrating on dramatic, commercial and documentary properties. Offered alternate years.

6921. Elements of Play Production. (3). Choosing the play, casting, directing, technical aspects of production as they relate to needs of people in educational and community settings.

7210-19-8210-19. Special Topics in Theatre. (1-3). Topics are varied and announced in *Schedule of Classes*. May be repeated for maximum of 9 hours when topic varies.

7431-8431. Seminar in Directing Narrative Theatre. (3). Theory and technique for directing literary texts not originally written for the theatre. Stage adaptations of short stories, novels, and compiled scripts. Script preparation and directing projects required. Repeatable for a maximum of 6 hours. Offered alternate years. PREREQUISITE: THEA 7521 or permission of instructor.

7440-8440. Seminar in Critical Studies. (3). Advanced studies in theatre criticism, dramatic literature, and theatre history. Methods of scholarly research appropriate for the dramaturg and producing artist. Semester topics alternate among studies of selected authors, periods, genres, and theatre movements. Repeatable for a maximum of 9 hours when topic varies. Offered alternate years. PREREQUISITE: Permission of instructor.

7521-8521. Stage Direction. (3). Processes of stage direction from script interpretation to rehearsal and performance with emphasis on the collaborative interplay between stage director and designer;

traditional and non-traditional theatrical modes; directing projects required. Offered alternate years.

7526-8526. Directing Studio. (3). Seminar/practicum investigation of advanced techniques of the stage director, styles of production, creative interpretation of established dramatic literature and/or creation of original work for the stage. Directing project required. Repeatable for a maximum of 9 hours. PREREQUISITE: THEA 7521.

7551-8551. Seminar in Theatre Aesthetics. (3). Aesthetic theories affecting the theatre from Classical Greece to the present. Special attention to the study of interrelationship between theatre and the other arts. May be repeated for maximum of 6 hours. Offered alternate years.

7553-8553. Styles of Directing. (3). Production styles and methodologies evidenced in art of major modern directorial innovators. Directing projects required. Repeatable for a maximum of 6 hours with permission of instructor. Offered alternate years.

7554-8554. Seminar in Directing. (3). Conceptual and practical studies in stage direction with emphasis on the collaborative interplay between stage director and actor. Directing projects required. Offered alternate years. PREREQUISITE: THEA 7521.

7558-8558. Design Studio. (3). Theory and practice of the arts of theatrical design, collaborative design process, development of vision and style, and techniques of design execution. Semester topics will alternate among design areas of scenery and properties, lighting and sound, and costuming. Repeatable for a maximum of 9 hours when topic varies.

7560-8560. Directed Studies in Design and Technical Production. (3). Individually supervised design and technical production projects in areas of scenery, costumes, lighting, and sound. Repeatable for a maximum of 9 hours. PREREQUISITE: Permission of instructor.

7564-8564. Principles of Scenography. (3). Basic principles and theories of modern Scenography. Areas

of investigation shall include scene, light, and costume design as they relate to the total production. Offered alternate years.

7571-8571. Advanced Playwriting. (3). Continuation of theories and practice of playwriting with the object of achieving a finished script, ready for production. PREREQUISITE: THEA 6571. May be repeated for maximum of 9 hours. Offered alternate years.

7581-8581. Seminar in Dramatic Theory and Criticism. (3). Major documents in dramatic theory and criticism from Aristotle to present. Offered alternate years.

7582-8582. Analysis of Dramatic Literature. (3). The dramatic text as basis for unified and purposeful production concept, advanced techniques of director and scenographer used to solve artistic/practical problems of specific plays. Offered alternate years.

7592-8592. Theatre Planning & Management. (3). Principles of theatre planning and management for educational and regional theatres. May be repeated for maximum of 9 hours. Offered alternate years.

K495 THEATRE AND COMMUNICATION ARTS (THCA)

7993-8993. Special Problems. (1-3). Individual investigation of special research projects not included in thesis.

7994-8994. Special Problems. (1-3). (Same as Above).

†7995-8995. Production Practicum. (3-6). Creative performance or production project suitable for public presentation and/or a practical application. Project to be determined in consultation with and directed by the student's supervisory committee.

†7996. Thesis. (1-6).

† Grades of S, U, or IP will be given.



THE COLLEGE OF EDUCATION

NATHAN L. ESSEX, Ph.D.,
Dean

GEORGE W. ETHERIDGE, Ed.D.,
Director of Graduate Studies

GRADUATE ACADEMIC PROGRAMS

Department	Major	Concentration Within Major	Degree Offered
Counseling and Personnel Services	Counseling and Personnel Services	(1) Elementary School Counseling and Guidance (2) Secondary School Counseling and Guidance	Master of Education (M.Ed.)
		(1) General Counseling and Guidance (2) Community Agency Counseling (3) Student Personnel Services (4) Corrections Counseling (5) Rehabilitation Counseling	Master of Science (M.S.)
			Doctor of Education (Ed.D.)
	Counseling Psychology		Doctor of Philosophy (Ph.D.)
Curriculum and Instruction	Curriculum and Instruction	(1) Adult Education (2) Higher Education	Master of Science (M.S.)
		(3) Curriculum Development (4) Instructional Design (5) Reading	Master of Education (M.Ed.) Master of Science (M.S.)
		(6) Elementary Education (7) Secondary Education	Master of Education (M.Ed.) Master of Arts in Teaching (M.A.T.)
		(8) Early Childhood Education	(M.S.) (M.Ed.) (M.A.T.)
		(1) Adult and Continuing Education (2) Curriculum Development (3) Early Childhood Education (4) Elementary Education (5) Instructional Design (6) Reading (7) Secondary Education	Doctor of Education (Ed.D.)
Educational Administration and Supervision	Educational Administration and Supervision		Master of Science (M.S.) Master of Education (M.Ed.)
		(1) General (2) Adult, Continuing and Community Education	Doctor of Education (Ed.D.)
Foundations of Education	Foundations of Education	(1) Cultural Foundations (2) Educational Psychology (3) Research Methodology and Statistics	Master of Science (M.S.)
		(1) Cultural Foundations (2) Educational Psychology (3) Research Methodology and Statistics	Doctor of Education (Ed.D.)
Health, Physical Education and Recreation	Health, Physical Education and Recreation	(1) School Health (2) Physical Education	Master of Education (M.Ed.)
		(3) Community Health (4) Recreation (5) Fitness and Wellness	Master of Science (M.S.)
Home Economics	Home Economics	(1) Home Economics Education (2) Fashion Merchandising (3) Housing and Home Furnishings (4) Nutrition	Master of Science (M.S.)
	Clinical Nutrition		Master of Science
Interdisciplinary	Geriatric Services	(1) Geriatric Counseling (2) Health Services	Master of Science (M.S.)
	Higher Education		Doctor of Education (Ed.D.)
	Education		Education Specialist (Ed.S.)
Special Education	Special Education	(1) Educationally Handicapping Conditions (2) Pre-School Education of Exceptional Children (3) Multihandicapped	Master of Education (M.Ed.)
			Master of Science (M.S.) Doctor of Education (Ed.D.)
Graduate School	Individual Studies	(by contract)	Master of Arts (M.A.) Master of Science (M.S.)

A wide variety of graduate programs of study are offered in the College of Education of Memphis State University. Candidates for a degree must design a plan which has the approval of their major adviser, the department chair, the Director of Graduate Studies and the Graduate Dean.

The College of Education offers degrees at the master's, specialist, and doctoral level. The master's degree programs are the Master of Education (M.Ed.), Master of Arts in Teaching (M.A.T.), Master of Science (M.S.). Offered at the post-master's level are the degrees of Education Specialist (Ed.S.), Doctor of Education (Ed.D.), and Doctor of Philosophy (Ph.D.) with a major in Counseling Psychology.

Graduate degrees in the College of Education are available in the departments of Counseling and Personnel Services; Curriculum and Instruction; Educational Administration and Supervision; Foundations of Education; Health, Physical Education and Recreation; Home Economics and Distributive Education; Special Education; and Indisciplinary Studies.

For specific information concerning majors, areas of concentration, course requirements, etc., students should review the program descriptions which are found under the departmental listings in this *Catalog*. See the list of academic programs at the beginning of this *Catalog* for majors and concentrations.

MASTER'S DEGREE PROGRAMS

The College of Education offers programs leading to the Master's degree in the departments of Counseling and Personnel Services, Curriculum and Instruction, Educational Administration and Supervision, Foundations of Education, Home Economics, Health, Physical Education and Recreation, Special Education, and Indisciplinary Studies.

Master of Education Degree (M.Ed.)

The Master of Education degree is designed for individuals who are already certified to teach. This degree provides for certified persons to expand their work in their area of teaching endorsement or to complete requirements for endorsement in areas for which licensure is available only at the graduate level. This degree includes an extension of the professional education programs at the undergraduate level and is concerned with further development of competencies established in those programs.

Master of Science Degree (M.S.)

The Master of Science degree is available to individuals who have needs or interests for working in education-related settings who do not need or desire teacher licensure. This degree is directed toward the development of competencies necessary for successful advancement in fields which are related to education but generally

considered outside the K-12 classroom setting of licensed persons.

Master of Arts in Teaching Degree (M.A.T.)

The Master of Arts in Teaching degree is designated for people with outstanding undergraduate records who are seeking initial teacher licensure at the graduate level. It is also available to those already licensed who seek additional licensure in one or more areas. Students may pursue licensure in early childhood, elementary or secondary fields.

Teacher Licensure

Individuals who wish to acquire teaching licensure without pursuing a degree may enroll in the licensure program.

Admission to Master's Degree Candidacy

Upon notification of admission to the Graduate School, the student may enroll and begin to take courses. However, a student's initial enrollment in no way should be taken to mean acceptance for degree candidacy. To become a candidate for a degree, the student must file "Application for Admission to Master's Degree Candidacy" forms available in the Graduate School or in the Dean's Office. For information on the procedures for completing degree candidacy forms, the student should consult the major advisor.

Appointment of Adviser

Prior to initial enrollment the student is advised to arrange an interview with the chair, or a representative, of the department in which the student plans to major. At this meeting the student will be assigned an adviser who will help the student in planning a program of studies.

Workshops and Independent Study Credits

The maximum combined credit in "Independent Study" and "Workshop" courses that can be applied to the master's degree is 10 semester hours with no more than 6 semester hours applying to the major. Seven semester hours of credit in "Independent Study" courses may be applied to master's degree requirements, but (no more than 4 of these hours may be taken in either the major or the collateral area).

If the student should elect to take "Workshop" courses and no "Independent Study" courses, only 6 workshop hours could apply to the major.

Other Requirements

The degree program must contain a minimum of 33 semester hours. For all programs except Home Economics, a minimum of 70% of the total required hours must be taken at the 7000 level. At least 12 semester hours of these must be taken in the major.

Program of Studies

Each student, in consultation with an adviser, will plan a program of studies leading to the fulfillment of the requirements for one of the degrees listed below.

Minimum requirements for the *Master of Education* degree are:

Major	
Content for Specialty Research (EDRS 7521)	18 hours
College Core*	3 hours
Cultural Foundations or Educational Psychology courses (EDFD-EDPS)	
Electives (selected in consultation with student's adviser)	9 hours
Total	33 hours

Minimum requirements for the *Master of Science* degree are:

Major	
Content for Specialty Research (EDRS 7521)†	18-21 hours
Electives (selected in consultation with student's adviser)	3 hours
	12-15 hours
Total	36 hours

* Curriculum (CIED 7002) may be used to satisfy the College Core requirement in those programs where it is a requirement.

† EDRS 7521 must be taken within the first 9 hours of the program.

Minimum requirements for the *Master of Arts in Teaching Degree and Licensure Only Program*

Minimum requirements for the Master of Arts in Teaching degree and the Licensure Only Program are undergoing revision. Students should consult with an advisor in the department in which they seek licensure or with the general advisor for the College of Education in Room 200, Ball Education Building.

Substitutions for Required Courses

Any substitutions for departmental required courses in the major must be approved by the adviser and the department chair. Substitutions which affect College or degree requirements must be approved by the adviser, the department chair, and the College Director of Graduate Studies.

Master's Thesis

A thesis of 3 to 6 semester hours may be presented as partial fulfillment of degree requirements. Immediately after the assignment of a thesis topic the student must submit the "Application to Write a Thesis or Dissertation" form to the Graduate School Office.

Each degree candidate must enroll for a minimum of 3 hours thesis credit each semester until the thesis is completed. Students who fail to complete their thesis at the end of the academic semester

following the registration for the total credits allowed to count toward the degree will be required to renew their status. In order to remain in active status, the candidate will be required to register for 1 hour of thesis credit each academic semester until the thesis is completed. (The summer session will be considered an academic semester for this purpose.) A student must be registered for 3 hours of thesis credit in the semester of graduation. Credit will be posted upon the completion and acceptance of the thesis, but no more than 6 hours will be counted toward degree requirements for a Master's thesis. This requirement may be waived for any semester the adviser is not on campus or for other reasons approved by the major adviser, the department chair and the Director of Graduate Studies of the College of Education.

Thesis Guidelines

Theses must be prepared according to guidelines specified by the College and the *Graduate School Handbook: Thesis and Dissertations*. For specific information, students should consult their major adviser.

Master's Comprehensive Examination

Before being recommended for graduation, every candidate for the Master's degree is required to pass a final comprehensive examination. It may be oral or written or both, at the discretion of the department concerned.

The comprehensive exam is administered each semester and during the summer session. Students must consult the "Schedule of Classes" of the semester they plan to take the exam for information about application deadlines and the exam schedule. To be permitted to take the exam, students must sign up for it in their department before the indicated deadlines.

Departmental requirements with reference to thesis, research, and course requirements for each of these degree programs are found under the appropriate departmental sections in the *Catalog*.

TEACHER EDUCATION LICENSURE AT THE GRADUATE LEVEL

The Master of Education degree program is the degree through which one may add endorsements in the areas of Administration/Supervision (grades K-8), Administration/Supervision (grades 7-12), Superintendent, School Counselor (grades K-8), Special Teacher of Reading (grades K-8), and Special Teacher of Reading (grades 7-12). Applicants who wish to add these areas must complete an approved program and be recommended by the College. To be recommended for adding an endorsement in these areas, one must hold a valid Tennessee License with endorsement in

the appropriate area (grades 1-8, 7-12, or K-12).

To obtain a Tennessee License with an endorsement in one of the following areas, School Counselor (Grades 7-12), School Psychologist, Speech and Hearing, the applicant must complete the approved program and be recommended by the College.

Initial Teacher Licensure

Two graduate level teacher preparation programs for initial licensure are offered by the College of Education. The Master of Arts in Teaching (M.A.T.) program is the degree through which initial teacher licensure at the graduate level can be obtained. The licensure program is for students seeking initial teaching licensure but not a master's degree. Both programs are available for secondary, elementary and early childhood teacher licensure.

Adding New Endorsement Areas

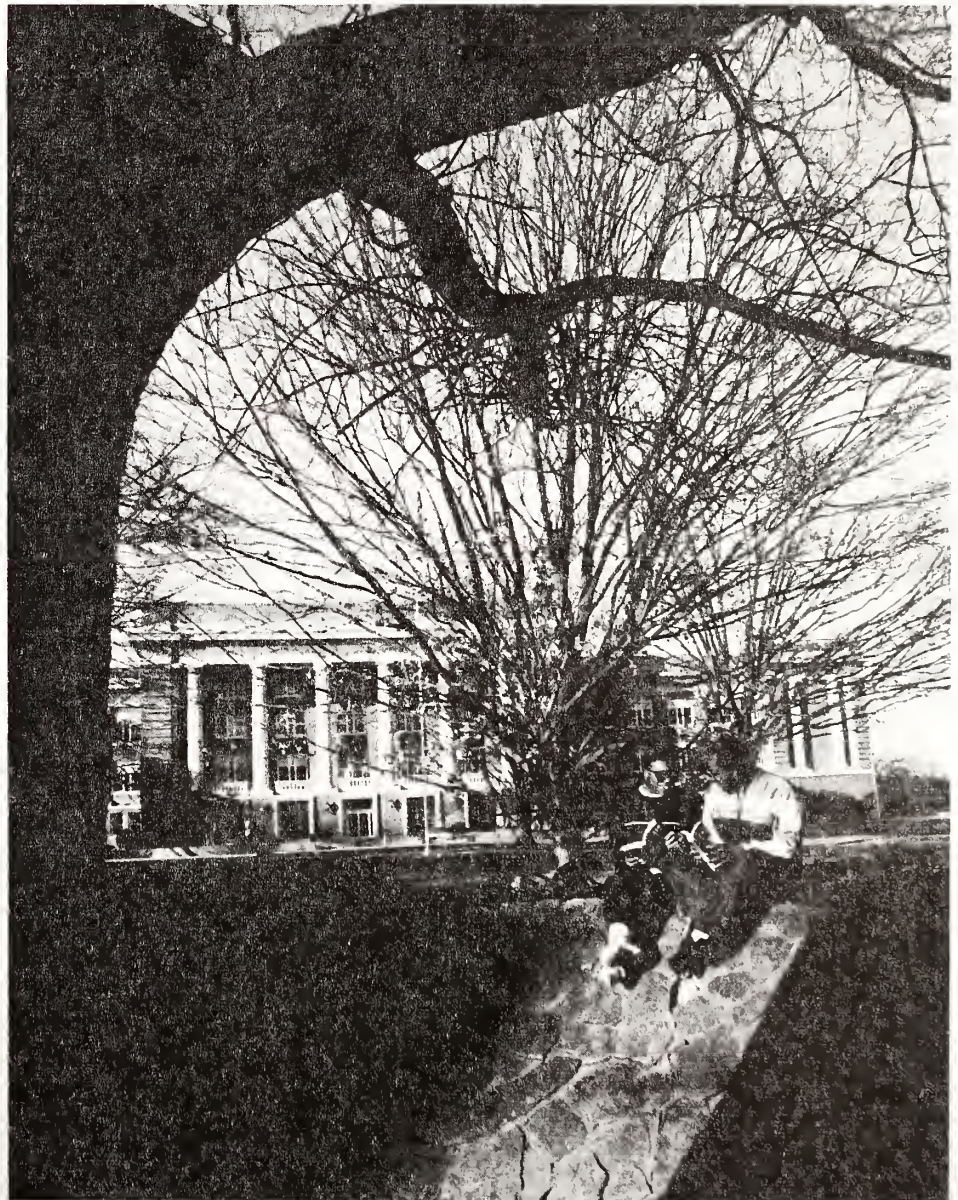
The Master of Arts in Teaching degree may also be pursued by students wishing to change their teaching fields. Students pursuing this degree will be required to meet the departmental prerequisites and teaching licensure requirements. Students may prepare in more than one discipline if they are seeking a teaching endorsement in more than one field.

Internships/Student Teaching

Students seeking initial licensure or add-on endorsements must complete their student teaching/internship requirements in the placements coordinated and approved by the Director of Student Services in the College of Education.

Policies Governing Licensure at the Graduate Level

Students who have received a bachelor's degree from an accredited institution that



did not qualify them for a teacher's license may become eligible for licensure by enrolling as a graduate master's student in the M.A.T. degree program or by enrolling as a graduate non-degree student in the licensure program and completing the requirements for the program according to the current catalog. These candidates should confer with the teacher licensing adviser concerning individual program requirements.

Procedures for Admission to the Graduate Level Teacher Preparation Programs

The student must apply for admission to the Graduate School and to the Master of Arts in Teaching degree program or the licensure program. When approved, the student will be assigned a graduate advisor.

For initial licensure the student must have an appropriate undergraduate major for the area of teaching licensure being sought.

Adding an endorsement at the graduate level which requires Memphis State's recommendation may be accomplished by completing the requirements of the approved program. Information can be obtained from the teacher licensing adviser.

Simultaneously with admission to the M.A.T. or teacher licensure program, the student must apply for and meet standards required for admission to the Teacher Education Program (TEP). Application for student teaching/internship is submitted the semester before enrolling in student teaching/internship.

For additional information consult the general adviser, College of Education.

The Master of Arts in Teaching degree may be earned without the presentation of a thesis. The acceptability of the student's overall performance in the M.A.T. program will be demonstrated through a written or oral examination near the end of the student's program.

For a more detailed explanation of the program, see the Department of Curriculum and Instruction program description.

POST-MASTER'S DEGREE PROGRAMS

To be admitted to post-master's degree candidacy in the College of Education, the student must first meet all Graduate School requirements and then complete a candidacy file in the department in which admission is sought.

Education Specialist (Ed.S.)

The Education Specialist degree is designed to provide an individualized, flexible program of studies for the educator practitioner in either a school or nonschool setting, whose academic interests are aimed at specific and individual career goals and needs. It offers opportunities for advanced professional specialization including a relevant culminating experience, or a thesis. Studies may be focused in the departments of Counseling

and Personnel Services, Curriculum and Instruction, Educational Administration and Supervision, Foundations of Education, and Special Education.

Doctor of Education (Ed.D.)

Doctor of Education programs in the College of Education are designed to improve the competency of teachers, counselors, supervisors, and administrators; to serve the career needs and goals of individuals in education-related fields; to encourage research in a student's area of concentration; and to initiate and implement programs involving the school and the community. The programs provide both breadth and depth of preparation through a flexible combination of academic specialization, interdisciplinary study, and significant research.

Doctor of Philosophy (Ph.D.)

The Ph.D. in Counseling Psychology is offered by the Department of Counseling and Personnel Services. It is designed to meet the needs of outstanding doctoral candidates who wish to seek licensing as counseling psychologists.

Admission to Post-Master's Candidacy

Admission to the Ed.S., Ed.D. and Ph.D. programs are administered by the department in which the student wishes to concentrate. After completion of the department's candidacy file, the department admissions committee will act on the application and notify the student of its action.

Appointment of Advisory Committee

When admitted to candidacy, the student should consult with the department chair and the temporary adviser in order to secure the appointment of a permanent major adviser who will also serve as chair of the Advisory Committee. The department chair, following consultation with the student and the major adviser, will make a recommendation to the Director of Graduate Studies concerning the appointment of a graduate Advisory Committee to assist the student in planning a complete program of studies. Upon approval by the Director of Graduate Studies, the appointments will be forwarded to the Graduate Dean.

The student's Advisory Committee for the Ed.S. and Ed.D. degrees shall be composed of at least three members, two of whom are representatives from the major department and at least one member must be from a collateral area. Each committee member must be a member of the Graduate Faculty at Memphis State University.

PROGRAM OF STUDIES

All programs of study for the Ed.S. and Ed.D. degrees include requirements in the following areas: Major, college core,

research, and appropriate supportive collateral.

Students should contact the department in which they intend to concentrate regarding additional program requirements.

Time Limitations

Each student, in consultation with the Advisory Committee, will plan a complete program of studies. The program of studies must be placed on file with the Director of Graduate Studies before the end of the semester immediately following admission to candidacy. No doctoral student may be considered as officially in residency unless the student has filed a program of studies, signed by the program Advisory Committee.

The student's program of studies for the Ed.S. degree must include a minimum of 66 semester hours, of which the last 33 hours shall have been earned no more than six years prior to the student's date of graduation.

The student's program of studies for the Ed.D. degree must include a minimum of 99 semester hours, of which the last 66 hours shall have been earned no more than ten years prior to the student's date of graduation.

Acceptance of Transfer Credit

Credit earned at another institution must be presented for consideration at the time the student is accepted for candidacy. Upon approval by the student's Advisory Committee, the credit will be transferred to apply toward the Ed.S. or Ed.D. provided that the credit meets its general University and specific program requirements.

Twenty-four of the last 45 semester hours to be applied toward the Ed.S. degree must be Memphis State University credit. Not more than 30 semester hours beyond the Master's can be transferred to the requirements for the Ed.D. degree.

Other Requirements

Thirty of the last forty-five semester hours to be applied toward the Ed.D. must be credit that is received through enrollment at the Memphis campus of Memphis State University. At least 18 of the 30 hours must be taken in courses which provide participation and interactive experiences with other graduate students. (This would normally exclude workshops, practicums, internships, independent study courses, and dissertation credit.)

The maximum combined credit in Independent Study and "Workshop" courses that can be applied to the Ed.S. degree requirements in work taken above the Master's degree level is 9 semester hours.

The maximum combined credit in Independent Study and "Workshop" courses that can be applied to the Ed.D. degree requirements in work taken above the Master's degree level is 18 semester hours with not more than 12 semester hours applicable to the major concentration.

Planning the Program

Minimum requirements for the *Education Specialist* degree are:

Major:	
Content for Specialty (including 6 hours culminating experience)	36 hours
*College Core:	
Cultural and/or Psychological Foundations (EDFD-EDPS prefixes). Students concentrating in Educational Psychology or Cultural Foundations will utilize the six hours for Inside COE (but not in major department) Supportive Collateral.	6 hours
Research Core:	
EDRS 7521	3 hours
**Supportive Studies:	21 hours
Directly supportive to the major—in or outside of the College of Education (May include courses within the major department.)	15 hours
Elective	6 hours
Total	66 hours

Minimum requirements for *Doctor of Education* degree (for all areas of emphasis except Higher Education and Adult, Continuing and Community Education):

Major:	
Content for Specialty	48+ hours
*College Core:	
Cultural and/or Psychological Foundations (EDFD-EDPS prefixes) (Students concentrating in Cultural Foundations or Educational Psychology will utilize these 9 hours for Inside COE, but not in major department, supportive collateral.)	9 hours
Research Core:	
EDRS 7521, EDRS 8541, and EDRS 8522 or 8542	9 hours
**Supportive Collateral:	
Inside or Outside COE, but must be outside major department.	18+ hours
Total	99 hours

Minimum requirements for *Doctor of Education* degree (Higher Education major and concentrations and Adult, Continuing and Community Education.)

Major:	
Content for Specialty (Includes higher education core)	39-63 hours
*College Core:	
Cultural and/or Psychological Foundations (EDFD-EDPS prefixes)	6-9 hours
Research Core:	
EDRS 7521, EDRS 8541, and EDRS 8522 or 8542	9 hours
**Supportive Collateral:	
Inside or Outside COE.	18+ hours
Total	99 hours

*Where Curriculum (CIED 7002) is required at the Master's level for school service personnel programs, it may be included in the college core.

**The supportive collateral studies are an explicit part of each student's program. The courses and other credit producing activities must be directly pertinent to the professional goals of the student's major. The critical requirement is that the supportive collateral studies and the work in the major concentration result

in a coherent combination which has the complexity, depth, and breadth appropriate for a rigorous program.

Changes in Program of Studies

Any changes to be made in a program of studies must be submitted on the appropriate form and must have the approval of the Advisory Committee, the department chair, and the Director of Graduate Studies.

RESIDENCY

Students working toward the doctoral degree must fulfill the University and College residency requirement *after* filing a program of studies.

Purpose

The purpose of a residency is to provide doctoral students with significant time for sustained contact with faculty members. A expected outcome will be the acquisition of skills of inquiry, an opportunity for research, and the incorporation of professional values into the experience that the student brings to graduate school. Also, it facilitates the creation of a cohesive climate in which inquiry becomes the linking feature of the graduate student experience. In short, residency is expected to be a vehicle for socialization into the shared community of professional life. At the heart of that community lies a commitment to sustained inquiry that extends beyond the period of doctoral preparation and into the student's lifetime work, either as a practitioner or as one who demonstrates leadership based on a foundation of inquiry.

Doctoral Residency Policies

1. A doctoral student must select one of the following course enrollment options:

a. Students will maintain two semesters of continuous enrollment of 9 hours per semester. The enrollment requirement may be satisfied by enrolling in fall, spring and summer semesters.

b. Three semesters of continuous enrollment of 6 hours per semester;

c. Nine hours of enrollment per semester during two consecutive summers and at least 3 hours of Special Problems per semester during the intervening Fall and Spring semesters.

2. A plan of residency will be developed by the student and major professor. The plan will be reviewed by the department.

3. The plan of residency consists of the following elements:

a. The plan will be contained in a 3-5 page document.

b. It will contain an introduction to the problem area that the student will address during the coming period of residency. This introduction will include a specification of the problem, an indication of its importance, and a brief summary of pertinent literature placing the problem in its context. Relevant theoretical implications will be noted.

c. It will detail a plan of action including projected time benchmarks to resolve the problem. It is expected that this plan will allow for a sustained and multifaceted inquiry that incorporates significant components derived from the literature and which have implications for the field of study.

d. Tools of inquiry expected to be required in the course of completing the residency will be noted. If the candidate possesses these tools, some indication documenting the mastery of the tool component should be noted. If skills of inquiry are to be acquired during the course of the residency this must be noted.

e. Faculty resources associated with each component of the plan must be indicated. It is expected that the student will be in contact with individuals who have been engaged in this area beyond the campus.

f. The products of the residency will be noted. It is expected that the residency will lead to a paper submitted to a peer reviewed journal or presented at a refereed conference.

Timetable for Filing for Residency

Prior to beginning residency, the written plan must be filed. The plan must have the approval signatures of the chair of the candidate's Advisory Committee and of the department chair. It must be submitted to the department office of the candidate's major for approval *no later* than the last day of graduate registration in the semester designated to count as residency. Students are expected to have satisfied requirements for admission to the doctoral program before filing a residency plan.

Comprehensive Examination for the Ed.S., Ed.D., and Ph.D. Degrees

When candidates for the Ed.S., Ed.D., or Ph.D. degree have completed all course requirements or are enrolled in the last course in their program of studies, exclusive of the culminating experience or dissertation, they must pass a comprehensive exam, written and oral, covering the major and collateral fields of study. Students who successfully pass the comprehensive exam will be designated as Late Doctoral Candidates or Late Specialist candidates in their degree status.

ED. S. CULMINATING EXPERIENCE AND DOCTORAL DISSERTATION

Ed.S. degree candidates will present a six hour culminating experience appropriate to the major area of specialization. This may be fulfilled through a thesis based on research related to the major, a field study of a significant problem, an organized internship or special project appropriate to the major.

An acceptable dissertation is a requirement for all doctoral degrees. The dissertation must embody the results of an

extended research effort which is an original contribution. It should reflect the candidate's ability to conduct independent research and interpret in a logical manner the facts and phenomena revealed by the research. The student will be required to meet the specific regulations of the major department and of the Graduate School. Ed.D. degree candidates will present dissertations for 12 hours credit.

Enrollment Requirements

Each degree candidate must enroll for a minimum of 3 hours field study, culminating experience, or dissertation credit each semester until the project is completed. A student who fails to complete the culminating experience/dissertation at the end of the academic semester following the registration for the total credits allowable will be required to renew academic status. In order to remain in active status, the candidate will be required to register for 1 hour of culminating experience/dissertation credit each academic semester until the project is completed. (The summer session will be considered an academic semester for this purpose.) A student must be registered for 3 hours of culminating experience or dissertation credit in the semester of graduation. Credit will be posted upon the completion and acceptance of the culminating experience/dissertation, but no more than 6 hours will be counted toward degree requirements for an Ed.S. culminating experience and no more than 12 hours for a doctoral dissertation.

This requirement may be waived for any semester the adviser is not on campus or for other reasons approved by the major adviser, the department chair and the Director of Graduate Studies of the College of Education.

Failure to remain on active status without an approved waiver will result in reevaluation of the candidate's status in the program by the Advisory Committee.

Committee Membership for Supervision of the Dissertation

Prior to submission of a prospectus for a dissertation, the Advisory Committee must be expanded to consist of at least five voting members. These additional members must be "full," "associate," or "adjunct," members of the graduate faculty of Memphis State University. They will be nominated by the chair and the student involved. They can be selected from whatever areas are most appropriate to support and assist in the student's research and should include at least one member from a supportive area within the College of Education outside the major department. Committee chairs must have full graduate faculty status.

Doctoral Prospectus

1. In order to provide a relatively uniform framework for preparation of doctoral prospectus, the College of Education has specified a format to be followed in its preparation. Copies of the format may be obtained from the major adviser or from the office of the Director of Graduate Studies.

2. Once a prospectus is approved, it is expected that the study will be completed within three years. If not the Advisory Committee will reevaluate the candidate's status in the program.

"Early doctoral student" designation applies to all doctoral candidates from the time of formal admission to candidacy in the College of Education until the time of completion of course work and passing the comprehensive exam over course work. At that time the candidate is redesignated as "late doctoral student."

Culminating Experience/Dissertation Guidelines

Culminating experiences and dissertations must be prepared according to guidelines specified by the College and the *Graduate School Handbook: Theses and Dissertations*. For specific information, students should consult their major adviser.

Final Examination (Culminating Experience/Dissertation Defense)

After the completion of the culminating experience/dissertation and all other prescribed work for the degree, all candidates will be given a final oral examination dealing primarily with the culminating experience/dissertation and its relation to the candidate's major field of study. This exam will be conducted by the student's Advisory Committee.

GRADUATE ASSISTANTSHIPS

Graduate assistantships for postmaster's students are available in most of the academic areas of the College of Education, and a limited number of graduate assistantships for master's students are available. All graduate assistantships are governed by the *Graduate School Handbook: Graduate Assistants*.

Active work and satisfactory progress toward a degree are necessary to hold an assistantship, and graduate assistants are required to be registered in each term in which they hold an assistantship. Full-time graduate assistants take nine hours of course work per semester, and serve 20 hours per week on the assistantship.

Permission for a graduate assistant to take as few as six credit hours in a semester may be granted by the College of Education Director of Graduate Studies upon the recommendation of the department chair.

Permission to take more than nine hours may be granted upon the recommendation of the department chair and the College of Education Director of Graduate Studies.

Applications for graduate assistantships may be obtained in the department offices, the Dean's Office, or the Graduate School Office.

M500 EDUCATION (EDUC)

6000-20. Study in Academic Disciplines. (3). Study in academic discipline content areas supportive of elementary and junior high curriculum.

6001. Concepts in Biology. (3).

6002. Concepts in Chemistry. (3).

6003. Concepts in Physics. (3).

6004. Concepts in Earth Science. (3).

7000. Analysis and Practice of Teaching I. (3). Intensive, interdisciplinary, and integrative study of human development, learning theory, and principles of teaching with applications through in-class and out-of-class experiences

7010. Analysis and Practice of Teaching II. (3). Intensive, interdisciplinary, and integrative study of models of teaching, curriculum assessment and evaluation, reading in content area, mainstreaming, multicultural concerns, and instructional technology. Emphasis on theory, research, and skills through simulations and microteaching. PREREQUISITE: EDUC 7000.

7020-22. Professional Development Seminars. (1-2). Problem solving approach used to analyze, synthesize, and reinforce experiences related to internship, including knowledge of teaching content area, pedagogical skills, and professional growth needs. Sequence of three seminars. Maximum of 2 hours may be earned in any one seminar.

7020. Professional Development Seminar I. (1-2). Interpersonal and group process skills needed for teaching.

7021. Professional Development Seminar II. (1-2). Specialty teaching area and pedagogical skills application.

7022. Professional Development Seminar III. (1-2). Teacher roles, professional relationships, and professional development.

7030. Assessment and Evaluation. (2). Test construction and methods of evaluation; emphasis on teacher made tests, standardized tests, test administration, test data management, interpretation and application of test data to instructional decisions and reporting test results to students and parents.

7032. Classroom Management. (2). Managing classroom environment; emphasis on constructive management techniques. Application of knowledge of human development and teaching and learning principles to development of classroom management systems.

7040. Curriculum Leadership. (3). Analysis of trends and issues in secondary education curriculum; scope and sequence of secondary school programs; and leadership styles that relate to effective teaching and effective leadership.

M550 EDUCATIONAL SERVICES (EDSV)

6150. Process Skills for Trainers. (3). Development of personal skills to enhance trainer's ability to interact effectively with people in training environments.

6350. Instructional Development for Training. (3). Instructional development techniques and application in training settings, principles of curriculum development, instructional delivery, and evaluation.

6450. Media Development for Trainers. (2). Practical preparation of audiovisual materials for training applying instructional design techniques, and development of media presentation skills.

6550. Organization and Management of Training Programs. (3). Development and management of instructional programs in non-school settings; focus on

goals, personnel, operational and budgetary considerations. **PREREQUISITE:** MGMT 3110 or permission of instructor.

COUNSELING AND PERSONNEL SERVICES

ROBERT L. CRAWFORD, Ed.D., *Interim Chair and Coordinator of Graduate Studies*
Room 113 Patterson Building

I. The Department of Counseling and Personnel Services offers graduate study designed to develop understanding and skills in counseling, guidance, student personnel services, and counseling psychology. Programs are provided for preparation of professionals in counseling, student personnel, and counseling psychology.

II. The department offers graduate programs leading to the Master of Education degree (M.Ed.) and the Master of Science degree (M.S.) with a major in Counseling and Personnel Services. The two concentrations at the M.Ed. level are Elementary School Counseling and Guidance and Secondary School Counseling and Guidance. The concentration areas of General Counseling and Guidance, Community Agency Counseling, Rehabilitation Counseling, Corrections Counseling, and Student Personnel Services are offered for the Master of Science degree. A concentration in Geriatric Counseling with a major in Geriatric Services is offered as an Interdisciplinary degree program. Requirements for this program may be found in the Department of Health, Physical Education, and Recreation section of this catalog. The Department offers a Doctor of Education degree (Ed.D.) with a major in Counseling and Personnel Services and a Doctor of Philosophy (Ph.D.) degree with a major in Counseling Psychology.

III. M.Ed. Degree Programs*

Major: Counseling and Personnel Services

Program Requirements

A. Core (12 semester hours): COUN 6611, 7531, and 7651; EDRS 7521.

B. Concentration (12 semester hours) in either Elementary or Secondary School Guidance and Counseling.

1. *Elementary School Counseling and Guidance:* COUN 7662, 7582, and 7692 or 7697; EDPS 7111.

2. *Secondary School Counseling and Guidance:*

a. Program Prerequisite: Candidates without teaching certificates must have completed six semester hours of course work at the upper division undergraduate or the graduate level in educational psychology, philosophy of education and/or sociology of education. Persons with undergraduate majors or minors in sociology, psychology, or philosophy are exempt from this requirement.

b. Requirements: COUN 7581, 7661, and 7691 or 7696; EDPS 7112. Candidates without valid Tennessee teaching certificates are required to take CIED 7002, CIED 7544, and SPED 7000 in addition to other degree requirements.

C. Supportive studies (12 semester hours). These courses must be approved as supporting the major area of study.

D. Minimum: 36 semester hours.

E. Written comprehensive examination.

*NCATE accredits all departmental M.Ed. programs and advanced programs for school personnel.

IV. M.S. Degree Programs

Major: Counseling and Personnel Services

Concentrations:

General Counseling and Guidance

Community Agency Counseling

Corrections Counseling

Student Personnel Services

Rehabilitation Counseling



A. Program Prerequisites

1. Six semester hours of course work at the upper division undergraduate or the graduate level in psychological, historical, sociological and/or philosophical foundations, OR

2. Background experience equivalent to above

B. Program Requirements

1. Major Core (12 hours): COUN 7531, 7581, 7651, and EDRS 7521.

2. General Counseling and Guidance and Corrections Counseling Concentrations (24 hours): Nine semester hours of Counseling and Personnel Services courses approved by the adviser; 15 semester hours approved as appropriate to the concentration and supporting the major.

a. Rehabilitation Concentration* (24-36 hours): Nine semester hours of Counseling and Personnel Services courses approved by the adviser; 15 to 27 semester hours approved as appropriate to the concentration and supporting the major.

b. Community Agency Counseling and Student Personnel Services Concentrations (36 hours): COUN 7661, 3 semester hours practicum in the concentration area, 6 semester hours internship in the concentration area, 24 additional hours approved as appropriate to the concentration and supporting the major.

3. Written comprehensive examination.

*Accredited by the Council on Rehabilitation Education.

V. Ed.D. Degree Program

The Ed.D. Program is designed to train highly skilled specialists and practitioners in specific areas of counseling and personnel services. These doctoral degrees are designed to provide a great degree of flexibility in competencies, programs of study, and alternatives for fulfilling the residency requirement. Students may pursue the degree as either part-time or full-time candidates. The flexibility of the Ed.D. allows students to attain high levels of specialization in applying counseling skills in practice with client populations of their choice.

1. 48-63 semester hours in the major.

2. 9 semester hours in educational psychology and/or cultural foundations.

3. EDRS 7521, 8541, 8522 or 8542.

4. 18-33 semester hours of collateral work outside the department, except that Rehabilitation Counseling courses may be used for collateral work.

5. Minimum: 99 semester hours of graduate credit with a minimum of 21 semester hours selected from courses numbered 8000 or above.

*NCATE accredits all departmental M.Ed. programs and advanced programs for school personnel.

VI. Ph.D. in Counseling Psychology Program

The Ph.D. in Counseling Psychology is designed to train scientist-practitioners in individual and group counseling and psychotherapy, research, and evaluation. The interdisciplinary program emphasizes preventive helping strategies through the promotion of optimal human development in the areas of mental health, career development, emotional and social learning, problem-solving, and decision-making in a rapidly changing environment.

A. Program Requirement Minimums

Students must take the following according to departmental guidelines:

1. 42 hours of counseling core
2. 12 hours of dissertation
3. 15 hours of psychology core
4. 12 hours of research methodology and statistics
5. 6 hours electives in psychology
6. 6 hours electives in counseling
7. 6 hours electives in social and behavioral sciences outside of counseling and psychology

8. Counseling psychology internship. For students in the Ph.D. program in counseling psychology, a full-time one-year internship in an agency approved by the Director of Training in Counseling Psychology is required. A student cannot accept an internship unless the dissertation proposal has been approved by the student's advisory committee by January 31 of the year the internship starts. Further the dissertation data must be collected before the student can begin the internship unless written arrangements are approved for the student to collect data while on internship.

B. Admissions

A limited number of applicants are admitted once each year only for admission in the Fall semester; applicants for Spring admission are not considered. All application credentials must be received by January 15 for an applicant to be considered. Candidates must meet the admission standards of the Graduate School, the College of Education, and be selected by a Counseling Psychology Coordinating Committee. An applicant for admission to the Ph.D. in counseling psychology program will present a GRE (V & Q) minimum score of 1000, a graduate GPA of at least 3.3/4.0 which includes a master's degree, and an undergraduate GPA of at least 2.5/4.0 (for students without a master's degree), and four letters of recommendation from persons familiar with the applicant's academic record and potential for graduate study in counseling psychology. Since all applicants may not be admitted, applicants should also present a 500-1000 word statement of their goals, interests, and related experiences. They should also be willing to provide taped demonstrations of their counseling skills if they have counseling background.

C. Enrollment

Candidates for the Ph.D. degree in counseling psychology are expected to carry a minimum of 9 hours credit per semester and to devote full-time during their enrollment to pursuit of degree related activities.

D. Professional Competency

Since candidates for the Ph.D. in counseling psychology are specializing in a profession, the Ph.D. degree represents more than the accumulation of the specified number of semester hours credit. The student has responsibility to the public and to the psychology profession to ensure that satisfactory levels of professional and research competencies are attained.

M731 COUNSELING AND PERSONNEL SERVICES (COUN)

6611. Introduction to Counseling. (3). History, principles and administration of counseling services in community agencies, schools, business and industry. Survey of applicable counseling services, skills and techniques.

6691. Residence Hall Staff Counseling and Advising. (3). Practical experience for residence hall staff will be provided. Deals with individual and group activities in counseling, advising, communication, and leadership. Concerns such as drug abuse, family planning information, and student discipline will be considered.

6760-79. Workshops in Counseling. Designed to offer continuing growth to the professional in the field of guidance and counseling. Experiences include application and study in the field designated by the specific workshop number.

6773. Workshop in Group Processes. (1-3).

6774. Workshop in Community Services. (1-3).

6775. Workshop in Student Appraisal. (1-3).

6776. Workshop in Career Counseling. (1-3).

6778. Workshop in Counseling. (1-3).

6781. Counseling Strategies for Crisis Intervention. (3). Process of crisis intervention. Study and practice in understanding crisis-induced dysfunctional behavior, recognizing crisis situations, and crisis counseling procedures.

6782. Gerontological Counseling. (3). A survey of demographic developmental, physiological-sensory, and psycho-social aspects of aging as applied to counseling. Experiences in the use of appropriate individual and group counseling techniques for the aged will be given with emphasis upon particular crisis situations such as: retirement, leisure, relocation, housing, institutionalization, dying, death, and survivorship.

6783. Alcohol and Drug Abuse Counseling. (3). Process of counseling alcoholic and drug dependent persons. Modalities of treatment, philosophy of treatment, and referral.

6784. Therapeutic Techniques with Substance Abusers. (3). Conventional methods utilized in treatment of substance abuse, individual and group counseling techniques, in-patient and out-patient programs. PREREQUISITE: COUN 6783 or permission of instructor.

7006-15-8006-15. Special Topics in Counseling and Personnel Services. (1-3). Study of current topics in the area of counseling and personnel services. May be repeated with a change in content.

7531-8531. Group Processes. (3). The organization and maintenance of effective groups. Group participation, projects and readings to aid students in delineating their roles in various group settings.

7581-8581. Theories of Counseling. (3). Person-centered, behavioral, cognitive-behavioral, reality, rational-emotive, Gestalt, psychoanalytic, and other appropriate theories. Emphasis on theoretical concepts, principles, and dynamics as applied in practice.

7582-8582. Theories of Child Counseling and Consulting. (3). Person-centered, behavioral, and related theories. Experiences include exercises in counseling, consulting, and coordinating with a focus on the elementary school.

7613-8613. Student Personnel Services in Higher Education. (3). This course will analyze the activities, functions, relationships, and philosophy of Student Personnel Services. It will address the historical

development and current trends in student personnel services as they relate to the changing concepts in higher education.

7622-8622. College Students and College Cultures. (3). Study of characteristics, developmental needs and differing life patterns of college students.

7623-8623. College Environments. (3). Person-environment interaction theories, campus ecology, impact of college environments on various student populations, and higher education environmental assessment techniques. PREREQUISITE: COUN 7622-8622.

7651-8651. Assessment Techniques. (3). The basic principles, tools and skills of diagnosis. Supervised experiences and performance-based activities related to the use of diagnostic techniques will be emphasized. Selection, use, interpretation and application of tools appropriate for group and individual appraisal.

7661-8661. Career Counseling. (3). The process of career development. Attention is given to the selection and use of educational and occupational information sources, career choice counseling and occupational choice.

7662-8662. Career Development for Children. (3). The effective use of human resources in the world of work. Selection and use of instructional materials and field experiences related to career development are emphasized. Exploration of knowledge and skills needed to support career awareness and exploration in grades K-9.

7672-8672. Seminar in Counseling and Guidance. (1-3). Devoted to current concerns and methodology in guidance and counseling. May be repeated for a maximum of nine semester hours credit. PREREQUISITE: Fifteen semester hours of credit in counseling and personnel services or consent of the instructor.

7673-8673. Seminar in Student Personnel Services (Higher Education). (3). Designed for students entering the field of student services in higher education; explores the functions of the student personnel division.

7690-8690. Clinical Techniques of Counseling. (3). Implementation and practice of counseling theories; modeling, practice, and critique of counseling skills. Sixty hour clinical experience included. PREREQUISITE: COUN 7581-8581.

†7691-8691. Supervised Practicum in Guidance and Counseling in the Secondary School. (3). An opportunity to work directly with adolescents in counseling procedures. Assistance with individuals and groups and practice in providing assistance in educational, occupational, and personal decision-making. 135 contact hours. PREREQUISITE: Departmental Approval.

†7692-8692. Supervised Practicum in Guidance and Counseling in the Elementary School. (3). Supervised counseling and guidance with elementary age children. Group discussions and individual interviews provide the student opportunities to interact with elementary children in a variety of settings. Practice in appropriate techniques in interaction with elementary children. 135 contact hours. PREREQUISITE: Departmental Approval.

†7695-8695. Supervised Practicum in Student Personnel Services in Higher Education. (3-9). Supervised experiences in one or more of the following areas: residence life, activities, admissions, records, organizations, financial aids, administration and other services. A seminar will be included. Course may be repeated for a maximum of 9 semester hours. PREREQUISITE: Fifteen semester hours of credit in guidance and personnel services or consent of the instructor.

†7696-8696. Internship in Secondary School Counseling and Guidance. (3-6). A full-time experience, salaried or non-salaried, in counseling and guidance in a selected secondary school. The student will perform in all guidance services for a minimum of 300-600 contact hours. May be repeated for a maximum of 6 hours credit.

†7697-8697. Internship in Elementary School Counseling and Guidance. (3-6). A full-time experience, salaried or non-salaried, in counseling and guidance in a selected elementary school. The student will perform in all guidance services for a minimum of 300-600 contact hours. May be repeated for a maximum of 6 hours credit.

†7698-8698. Internship in General Counseling. (3-6). A full-time experience, salaried or non-salaried, in counseling and guidance in an appropriate community service agency. The student will perform in all the agency's guidance services for a minimum of 300-600 contact hours. May be repeated for a maximum of 6 hours credit.

†7699-8699. Internship in Counseling and Personnel Services. (1-12). A full-time experience, salaried or non-salaried, in counseling, guidance or student personnel services. The student will perform in all the services of the setting for a minimum of 100 hours per hour of credit. Designed to complement on-campus course study with actual on-site professional experience in an integrated approach focused on programmatic, career, and individual student goals and needs.

8769. Advanced Career Counseling. (3). Analysis of career development theory and research as applied to practice of career counseling; variables affecting career development in counseling diverse career development clients.

7780. Systems Development for Family Therapy. (3). Systems theory applied to families as a framework for family therapy; analysis of family systems at different stages of the family life cycle; history of family therapy, research, and professional/ethical issues. Prerequisite: COUN 7581 or consent of the instructor.

7787-8787. Consultation Theories and Practices. (3). Exploration of role of consultant in developing appropriate skills to interact with client and in applying concepts to practice.

7811-8811. Survey and Development of Treatment Programs in Corrections. (3). Survey of theories and techniques used in contemporary treatment programs in corrections. Course content includes the development of contemporary corrections methods and practical considerations of operating corrections programs. Practice in identifying problems in corrections and developing plans for treatment programs.

7881-8881. Corrections Counseling. (3). Application of major theories of counseling in corrections setting. Emphasis is on the practical application of a variety of contemporary theories in corrections. PREREQUISITE: 7581-8581 or 7582-8582 or consent of the instructor.

7882-8882. Advanced Gerontological Counseling. (3). Counseling theories applied to the aging. Experience in the use of appropriate individual and group counseling techniques with the aged with emphasis on crisis situations relating to retirement, relocation, dying, death, and survivorship. PREREQUISITE: COUN 6782 and 7581 or permission of instructor.

7883-8883. Pre-Retirement Counseling. (3). Processes relating to preparing for retirement. Attitudes, finances, leisure planning, career change or part-time employment covered in-depth. Emphasis on planning and executing pre-retirement programs for business, industry, and social organizations (community agencies). PREREQUISITES: COUN 7581 or permission of instructor.

7891-8891. Supervised Experiences in Applied Gerontology. (3). Supervised experiences in aging-supervising agencies. Written report required. 135 contact hours. PREREQUISITE: Department approval.

†7892-8892. Supervised Counseling Practicum in Community Agencies. (3-6). Supervised counseling in one or more community agencies. Tapes, observation, and interviews of students' techniques are studied and critiqued by the supervisor. 135 contact hours. PREREQUISITE: Departmental approval. May be repeated for a maximum of six hours.

†7893-8893. Supervised Practicum in Mental Health Counseling. (3-6). PREREQUISITE: Departmental approval.

7894-8894. Supervised Practicum in Marital and Family Therapy. PREREQUISITE: Departmental approval.

†7895-8895. Supervised Practicum in Human Resources Development. (3-6). PREREQUISITE: Departmental approval.

†7896-8896. Supervised Practicum in Alcohol and Drug Abuse Counseling. (3-6). PREREQUISITE: Departmental approval.

†7897-8897. Supervised Practicum in Gerontological Counseling. (3-6). PREREQUISITE: Departmental approval.

7901-8901. Principles and Techniques of Rehabilitation Counseling. (3). Overview of the broad field of rehabilitation including the philosophical, social, psychological and legal basis of rehabilitation, the rehabilitation process and the counselor's role and function in the rehabilitation process.

7903-8903. Psycho-Social Aspects of Rehabilitation. (3). Theories and research in the area of the social psychological adjustment of disability.

7911-8911. Medical Aspects of Rehabilitation. (3). Orientation to the medical profession, its specialties and relationship to rehabilitation; a familiarity with basic medical and clinical terminology, a survey of body systems, their basic functions, malfunctions; and the more common diagnostic and treatment procedures.

7921-8921. Vocational Development and Occupational Information Service. (3). Collection, evaluation and use of occupational, educational and related information in rehabilitation. Familiarity with the development of job descriptions and vocational surveys. Study of labor market trends and theories of occupational choice.

†7941. Practicum in Rehabilitation Counseling. (3). Supervised counseling experiences with rehabilitation clients. Application of appropriate theories, principles and practices to personal counseling.

†7942. Internship in Rehabilitation Counseling. (3-9). Supervised field experiences in cooperation with the state rehabilitation agency and other human service agencies and facilities.

†7943-8943. Supervised Internship in Mental Health Counseling. (3-6). PREREQUISITE: Departmental approval.

†7944-8944. Supervised Internship in Marital and Family Counseling. (3-6). PREREQUISITE: Departmental approval.

†7945-8945. Supervised Internship in Human Resource Development. (3-6). PREREQUISITE: Departmental approval.

†7946-8946. Supervised Internship in Alcohol and Drug Abuse Counseling. (3-6). PREREQUISITE: Departmental approval.

†7947-8947. Supervised Internship in Gerontological Counseling. (3-6). PREREQUISITE: Departmental approval.

†7948-8948. Supervised Internship in Student Personnel Services. (3-6). PREREQUISITE: Departmental approval.

7993. Special Problems in Counseling. (1-3). Individual investigation and report in the area of counseling under the direction of a faculty member. May be repeated for a maximum of nine hours.

†7996. Thesis. (1-6). Only students with superior scholarship are permitted to register in this course. The student must present in writing an outline describing the proposed thesis. This outline, when approved by the faculty members, is submitted to the department chair for approval. Emphasis on the adequate setup of the problem, the collection of the data, their use, and conclusions to be reached. Application for writing a thesis must be filled out on an approved form after consultation with the major professor, and filed with the Dean of Graduate Studies at the time of registration.

†8000. Specialist Culminating Experience. (1-6). Thesis, internship, field study, or special project designed under the direction of student's committee. Serves as capstone experience in the Education Specialist Program.

8781. Marital and Family Therapy Theories and Techniques. (3). Major approaches to family therapy: structural, Bowenian, strategic, behavioral, communications, experiential, object relations; techniques and assumptions, traditional and current practices. PREREQUISITE: COUN 7780 or permission of the instructor.

8782. Advanced Marital and Family Therapy. (3). Marital counseling and problem situations; phases of therapy, ethical dilemmas, research methodology in family therapy, and couple/family dysfunction. PREREQUISITE: COUN 7780 or permission of the instructor.

8783. Women's Issues in Counseling. (3). Current issues related to counseling women including women's developmental theory, awareness of sex role socialization and biases, and appropriate approaches to counseling women with different needs.

8784. Multicultural Counseling. (3). Theory and research on individual and group multicultural counseling with particular attention to ethnic and racial sectors of society in the U.S.

†9000. Doctoral Dissertation. (1-9). Credit may be earned over a period of several semesters. The dissertation may be an organized scientific contribution or a comprehensive analysis of theory and practice in a specific area.

M735 COUNSELING PSYCHOLOGY (CPSY)

7683-8683. Seminar in Counseling and Personnel Services Research. (3). Designed to give the advanced graduate student in counseling and personnel services the opportunity to explore present research and research methodology, and to begin to carry out research. PREREQUISITE: Fifteen semester hours of credit in counseling or consent of the instructor.

7684-8684. Seminar in Counseling Psychology. (3). Designed for and required of students admitted to doctoral program in Counseling Psychology. History and systems of professional psychology, trends, practices and research in Counseling Psychology. Implications in areas of law, ethics, psychological problems and professional applications. PREREQUISITE: Departmental approval. May be repeated for maximum of 6 semester hours.

7731-8731. Advanced Group Processes for Counselors. (3). Advanced study of group processes as applied to counseling, guidance, and student personnel work. Activities, functions, and dynamics of groups will be studied with actual experience with group work included. PREREQUISITE: Fifteen semester hours of credit in counseling or consent of the instructor.

7784-8784. Advanced Counseling Theories and Techniques. (3). Critical analysis of selected theories and techniques of counseling. Emphasis is upon a variety of major theories and systems. Provides a thorough theoretical base for developing a consistent approach to professional counseling. PREREQUISITE: COUN 7581.

7785-8785. Legal and Ethical Issues in Counseling. (3). Examination of existing and needed legislation affecting counseling, review of critical court cases, and study of ethical standards of professional counseling organizations. Survey of responsibilities and liabilities.

7786-8786. Counselor Supervision. (3). Designed for doctoral students to perform supervisory roles in agencies and institutions. Theories, techniques, and skill assessment will be utilized in developing consistent approach to professional supervision. PREREQUISITE: Departmental approval. May be repeated for a maximum of 6 semester hours.

7790-8790. Practicum in Counseling Research. (3). Supervised practice in developing, designing, conducting, writing, and reporting on a variety of investigative formats in counseling research. May be repeated for a maximum of 12 semester hours.

8793. Practicum in Group Counseling and Psychotherapy. (3). Theoretical-philosophical and research base of group counseling and psychotherapy; supervised application. PREREQUISITE: Admittance to Counseling Psychology program. May be repeated for a maximum of 12 hours.

†8694. Advanced Practicum in Counseling. (3). Designed for practicing counselors. Consists of critical analysis of actual counseling interviews, including both individual and group sessions. Various methods employed for recording and observing counseling sessions, such as audio and/or video tapes and one-way vision screens. Counseling attitudes, techniques, and ethics will be considered. PREREQUISITE: counseling practicum or appropriate counseling experience.

†9000. Doctoral Dissertation. (1-9). Credit may be earned over a period of several semesters. The dissertation may be an organized scientific contribution or a comprehensive analysis of theory and practice in a specific area.

† Grades of S, U, or IP will be given.

CURRICULUM AND INSTRUCTION

THOMAS A. RAKES, Ed.D., *Chair*

Room 424, The College of Education Building

CAROLE L. BOND, Ph.D., *Coordinator of Graduate Studies*

I. The Department of Curriculum and Instruction offers graduate programs leading to the Master of Education, Master of Science, Master of Arts in Teaching, and Doctor of Education degrees. At the M.Ed. level, concentrations are offered in Instructional Design, Early Childhood Education, Elementary Education, Secondary Education, and Reading. At the M.S. level, concentrations are offered in Instructional Design, Early Childhood Education, Higher Education, Adult Education, and Reading. At the M.A.T. level, concentrations are offered in Early Childhood Education, Elementary Education, and Secondary Education. At the Ed.D. levels, concentrations are offered through a major in Curriculum and Instruction in Instructional Design, Early Childhood Education, Adult and Continuing Education, Elementary Education, Secondary Education, Reading, and Curriculum Development. All programs designed for certification are approved by the National Council for the Accreditation of Teacher Certification (NCATE). Graduates of Curriculum and Instruction programs are employed in many fields. In addition to working in education, both in the classroom and in supervisory positions, Curriculum and Instruction graduates are involved in business, industry, and governmental positions designing programs, evaluating systems, and providing on site specialized instruction.

II. M.Ed. Degree Program

A. Program Admission

Students must be admitted to The Graduate School.

B. Program Prerequisites

Candidates must have had at least one year of teaching experience or its equivalent before the degree is awarded. A teacher's professional certificate is required.

C. Program Requirements

1. A total of **33** semester hours is required.
2. The major will consist of **18** semester hours as follows:
 - a. CIED 7002 and 7050
 - b. **6-9** semester hours of course work within the department emphasizing curriculum, methods, and research in teaching specialty
 - c. **3-6** semester hours of selectives within the department supportive of the teaching specialty and applicable to teaching level but not ordinarily limited to the teaching specialty
3. Electives (**0-3** semester hours) in any department; must be supportive and applicable to the teaching specialty
4. EDRS 7521 and **3** semester hours in cultural or psychological foundations of education
5. **9** semester hours must be taken in courses approved as supporting the major area of study

III. M.S. Degree Program

A. Program Admission

Students must be admitted to The Graduate School.

B. Program Prerequisites

The student must present one of the following:

1. Six semester hours of undergraduate work in the foundations of education areas (cultural and/or behavioral)
2. Satisfactory scores on Advanced Education Section of the G.R.E.
3. Background experiences equivalent to prerequisites 1 or 2

C. Program Requirements

1. A minimum of **36** semester hours is required.

2. The major will consist of 18-21 semester hours including CIED 7002 and 7050.

3. Electives — 12-15 semester hours. Courses taken depend on the undergraduate background, previous experiences of the student, and the nature of the major area of concentration. These courses must be approved as supporting the major area of study.

4. EDRS 7521 — 3 hours

IV. M.A.T. Degree and Licensure Program

The M.A.T. degree is available for students who wish to qualify for initial licensure and for students wishing to add licensure in one or more areas. Both full and part time programs are offered. A program is also available to those who seek licensure but do not wish to pursue a graduate degree. Both programs prepare early childhood, elementary, and secondary teachers.

M.A.T. and licensure programs are currently undergoing revision. Students should consult with the College of Education general adviser or with the Department of Curriculum and Instruction for specific requirements.

A. Program Admission of M.A.T. and Licensure Program

Candidates seeking admission to the Graduate Teacher Preparation Program will submit a portfolio to the Teacher Education Admission Committee to document the following admissions requirements:

1. Bachelor's degree from an accredited college
2. Sufficient coursework to permit licensure in a teaching field
3. Completion of an appropriate general education curriculum
4. M.A.T. Students must be admitted as graduate master's degree students.
5. Licensure program students may be admitted as a graduate master's or graduate non-degree student.
6. Formal application to the Teacher Education Program (TEP).
7. 2.50 overall GPA, or 3.0 in the teaching area, or 2.75 for last 60 semester hours credit
8. Acceptable scores on the Miller Analogies Test or the Graduate Record Examination
9. Evidence of proficiency in written and oral communication
10. Successful completion of personal interview
11. Acceptable scores on other required tests

B. Program Requirements

1. For students seeking licensure and the M.A.T. degree, a minimum of 45 semester hours is required unless some requirements have been met with undergraduate studies.

The students must satisfy requirements in General Education and must have met, or will have met upon completion of the program, the undergraduate requirements or their graduate equivalents in the field of study in which the student is seeking licensure.

Students seeking licensure through the Master of Arts in Teaching program must refer to undergraduate catalog requirements and procedures for admission to the Teacher Education Program and for student teaching and confer with the College of Education general adviser concerning requirements for licensure. Students must make formal application for admission to the Teacher Education Program immediately upon entering the program. The deadlines for filing an application for student teaching are March 1 for Fall student teaching and October 15 for Spring student teaching.

2. A minimum of 36 hours is required for students who hold secondary licensure and wish to add one or more areas.

3. Licensure in Tennessee requires acceptable scores on the NTE Core and Specialty Examinations.

V. Ed.D. Degree Program

A. Program Admission

1. Before completing 12 semester hours of post-master's credit, the student should present Graduate Record Examination scores and declare intentions concerning a request for admission to an Ed.D. program as soon as possible after initial enrollment for post-master's credit. University requirements for admission to the Graduate School must also be met.

2. The Department of Curriculum and Instruction will evaluate the student's file after completion of the first semester following the request for admission to the Ed.D. program. Evaluation will be made of the student's Graduate Record Examination Scores, letters of reference, writing sample, and grades earned for course work taken as post master's credit. The basis of the evaluation will be for the purpose of retention in the Department's Ed.D. program.

B. Transfer Credit

1. No more than one year of transfer work (30 semester hours) above the Master's may be applied to the requirements for the Ed.D.

C. Program Requirements

1. A minimum total of 99 semester hours of graduate credit beyond the bachelor's degree with a minimum of 21 semester hours selected from courses numbered 8000 and above are required.

2. The major will consist of a minimum of 48 semester hours which must include the departmental core: CIED 8002, 8050, and 12 hours in 9000.

Departmental core for all concentrations: CIED 8002, 8050, and 12 hours in 9000.

3. A minimum of 18 semester hours of collateral courses outside the major department

4. 9 semester hours of research: EDRS 7521, EDRS 8541, and EDRS 8522 or 8542 or 8543.

5. 9 semester hours of cultural and/or psychological foundations of education.

6. Completion of the college and university residency requirements.

7. Two years of teaching experience (or its equivalent) are required.

The Department of Curriculum and Instruction offers a number of areas of concentration. These include Curriculum, Instructional Design, Early Childhood Education, Elementary Education, Secondary Education, Continuing Adult Education, and Reading.

M675 CURRICULUM AND INSTRUCTION (CIED)

NOTE: Course numbers at the end of the description are former numbers. If the course has been taken under this former number, it may not be repeated unless so specified.

CURRICULUM

6761. Aerospace Education in Schools. (3). (ELED 6761) Consideration of aerospace content and flight experiences. Emphasizes classroom applications.

7002-8002. Fundamentals of Curriculum Development. (3). The fundamental aspects of curriculum development and the basic issues underlying curriculum. Includes educational directions, ordering potential experiences, patterns of curriculum organization, and the determination of principles and procedures to be used in changing, evaluating, and sustaining the curriculum.

7003-8003. Curriculum Design and Evaluation. (3). Considers a variety of curriculum designs and their implications for educational practice.

7004-8004. Innovative Curricula: Development and Implementation. (3). Generic issues, problems, processes, and strategies relative to changes occurring with the implementation of innovative curricula. **PREREQUISITES:** CIED 7002, 7050.

7008-8008. Seminar in Curriculum Improvement. (3). An introduction to curriculum decision-making. Includes curriculum development as a social process, issues and trends, theories and techniques of curriculum leadership, and translations of curriculum designs into practice.

INSTRUCTIONAL DESIGN AND TECHNOLOGY

7050-8050. Instructional Strategies. (3). Emphasizes various instructional models, their applications for various age groups, and their relationship to curricula. Individual and group participatory activities.

7051-8051. Simulation and Gaming. (1-3). Surveying, analyzing, and designing simulation and gaming activities appropriate for classroom situations. Individual and group participatory activities.

7052-8052. Individualizing Instruction. (3). Analyzing various paradigms for individualizing instruction. Emphasis will be placed on designing, developing, evaluating, and managing alternative models.

7053-8053. Diagnostic Prescriptive Teaching. (3). Utilization of diagnostic instruments appropriate for use by classroom teachers from preschool through the 12th grade. Application of findings to develop individually prescribed curriculum.

7054-8054. Creativity in Teaching and Curriculum. (3). Instructional strategies relevant to development of creative potential. Activities include problem-solving, metaphoring, inventing, synectics, evaluation, questioning, brainstorming, creative writing and thinking, and spontaneity.

7058-8058. Values Clarification for Education. (3). Values clarification strategies including those relevant to improving academic and social climate. Materials applicable to various subject areas.

7059. Models of Instruction. (3). Analysis of theoretical and research support for selected models of instruction; emphasis on teaching applications.

7060-8060. Microcomputers and Learning. (3). Microapplications in the instructional process, including use of software, designing instructional programs, classroom management, use in training programs, overcoming microcomputer anxiety and creative uses for microcomputer in learning. **PREREQUISITE:** EDRS 6530 or permission of instructor.

7070-8070. Preparation of Instructional Materials. (3). Design, preparation, and utilization of a variety of readily available instructional materials. Laboratory practice. Includes preparation of both transparent and non-transparent graphics.

7071-8071. Principles and Applications of Instructional Design. (3). Application of instructional design principles to solve performance and instructional problems in educational and noneducational environments.

7072-8072. Advanced Instructional Media Production. (3). Analysis and application of perceptual and learning principles to design and development of instructional media for use in educational and training applications. **PREREQUISITE:** CIED 7071-8071 or consent of instructor.

7073-8073. Developing Interactive Instruction. (3). Application of instructional design principles to design and development of interactive instruction using various instructional technologies.

7078-8078. Seminar in Instructional Design and Technology. (3). Professional and research problems in instructional strategies, design, and technology. **PREREQUISITE:** Permission of instructor. May be repeated once with a change in topic.

7079-8079. Implications of Research for Curriculum and Instruction. (3-12). Identifies and summarizes past and current research in curriculum improvement and instruction in early childhood education, reading, language arts, mathematics education, science education, and adult education. **PREREQUISITE:** EDRS 7521 or consent of instructor.

EARLY CHILDHOOD EDUCATION

7100-8100. Values and Principles of Early Childhood Education. (3). Current curricula, trends, and issues related to early childhood education. (ELED 7103-8103).

7101-8101. Nursery, Kindergarten and Primary Teaching. (3). Innovative methods and techniques for teaching nursery, kindergarten, and primary children. (ELED 7104-8104).

7103-8103. Literacy Development in Early Childhood. (3). Analysis of theory and research on literacy development in children from birth through age eight, including developmentally appropriate applications to young children's literacy learning.

7104-8104. Play and Early Childhood Development. (3). Analysis of role of play in young children's development and learning from birth through age eight; developmentally appropriate applications of play theory and research to young child's physical, intellectual, language, social, and emotional development and learning.

7105-8105. Piaget in Early Childhood Education. (3). Piaget's early childhood development patterns and the implication for classroom instructional practices.

7106-8106. Montessori in Early Childhood Education. (3). Montessori theory, philosophy, pedagogy, and didactic apparatus and research. Analysis of past and current research of Montessori programs.

7108-8108. Seminar in Early Childhood Education. (3). Analysis of contemporary issues and trends in the field of early childhood education. May be repeated for a maximum of 6 hours of credit.

ELEMENTARY EDUCATION

7130-8130. Elementary School Curriculum. (3). Analysis of curriculum theories, materials, and practices as they affect the child's potential, and growth.

7131-8131. Parent-Teacher-Child Relationships. (3). Focus on parent-teacher, parent-child, and child-teacher interactions as they relate to the instructional program.

7138-8138. Seminar in Elementary Education. (3). Analysis of contemporary issues and trends in elementary education.

SECONDARY EDUCATION

7160-8160. Modern Methods in Secondary Education. (3). Secondary school teaching and how the secondary school can perform its role most effectively.

7168-8168. Seminar in Secondary Education. (3). Analysis of problems, current issues, and trends in secondary education.

7170-79. Specialized Teaching Methods. (2). Objectives and philosophy of subject field as applied to secondary education; consideration of issues and research in content area; examination of curricular scope and sequence; application of adaptive and unique instructional strategies and methods to specific area; examination, selection and utilization of curricular and instructional materials.

7170. Specialized Methods in English Education. (2).

7171. Specialized Methods in Mathematics Education. (2).

7172. Specialized Methods in Social Studies Education. (2).

7173. Specialized Methods in Science Education. (2).

7174. Specialized Methods in Foreign Language Education. (2).

HIGHER EDUCATION

7200-8200. College and University Curriculum. (3). Analysis of the development, implementation, and evaluation of curriculum in colleges and universities as well as major trends and problems in today's post-secondary education which affect curriculum.

7201-8201. College Teaching. (3). Designed for persons who teach (or aspire to teach) in post-secondary educational institutions. Includes an examination of major issues and trends in teaching-learning in higher education and of various teaching approaches which can be helpful in meeting diverse needs of students.

7204-8204. Teaching in Developmental Education. (3). Designed for those who teach or aspire to teach in developmental educational programs in colleges, universities, and other postsecondary institutions; skill development in teaching methods, examination of sound development of instructional plans, and analysis of theory and research on ways to foster student learning.

ADULT EDUCATION

7250. Introduction to Adult Education. (3). Overview of the field of adult education. Includes historical development, program planning, methods and techniques, and the nature of the adult learner.

7251-8251. Methods and Techniques in Adult Education. (3). Analysis of the methods and techniques available for working with adults, including the community development method, and their applicability under varying circumstances.

7252-8252. Curriculum Planning in Adult Basic Education. (3). Principles of curriculum building and their applicability to adult basic education clientele.

7255-8255. The Adult Learner. (3). Examination of the major learning styles of adults. Includes factors which affect learning ability, achievement, lifelong learning, and motivation throughout the adult life-cycle.

7256-8256. Community Programs in Adult Education. (3). Analysis of adult education programs conducted by various organizations, agencies, and groups as a primary, supplementary, or complementary function.

7258-8258. Adult Education Seminar. (3-6). Problems and issues confronting adult education, with emphasis on review and interpretation of related research. PREREQUISITE: Permission of instructor.

ENGLISH/LANGUAGE ARTS EDUCATION

7300-8300. Contemporary Issues in Language Arts Instruction. (3). Analysis of current trends and issues in the teaching of language arts; theory and research related to teaching models and their application in the language arts.

7301-8301. The Teaching of Children's Literature in the Elementary School. (3). Methods of teaching children's literature in the elementary school, including story telling, dramatization, choral speech work.

7302-8302. Teaching Literature to Adolescents. (3). Methods of teaching adolescent literature including fiction, non-fiction, drama and poetry.

7303-8303. English/Language Composition: Curriculum of the Secondary School. (3). Emphasis on developing and implementing a sequential curriculum in secondary school language and composition.

7308-8308. Seminar in English/Language Arts. (3). Emphasis on oral and written language models and how these models can be used in the development of a student-centered language arts curriculum. K-14.

FOREIGN LANGUAGE EDUCATION

7350-8350. Teaching Foreign Language. (3). For elementary and secondary teachers with a foreign language background. Methods of instruction, materials development, and coordination of instruction from one grade to the next.

MATHEMATICS EDUCATION

7500-8500. Teaching of Mathematics in the Elementary School. (3). Consideration of principles and techniques of teaching mathematics in elementary schools including study and evaluation of current instructional materials.

7501-8501. Elementary Mathematics Education Curriculum. (3). Issues and trends in elementary school mathematics curriculum. Appropriate current reports of professional groups will be considered.

7502-8502. Teaching Mathematics in the Secondary School. (3). Consideration of principles and techniques of teaching mathematics in secondary schools including study and evaluation of materials of instruction. PREREQUISITE: Permission of the instructor.

7503-8503. Secondary Mathematics Education Curriculum. (3). Analysis of the secondary mathematics curriculum as it relates to sound educational practices.

7508-8508. Seminar in Mathematics Education. (3). Study and discussion of selected mathematics education topics of concern or special interest.

READING

7532. Principles of Skills Assessment in ESL. (3). (Same as ENGL 7532). Application of theories of teaching second language skills; emphasis on testing in a second language.

7533. Methods and Techniques of ESL in K-12. (3). (Same as ENGL 7533). Techniques and resources for working with children and adolescents for whom English is a second language.

7540-8540. Cognitive, Affective, and Linguistic Influences on Reading. (3). Models of reading instruction; history, philosophy, and research supporting those models. (Offered Fall, Spring and Summer).

7541-8541. Advanced Assessment of Reading Performance. (3). Principles of assessment, evaluation, and prognosis in reading; formal and informal procedures and instruments used in assessing reading and related cognitive abilities; multiple causation approach to reading difficulties. PREREQUISITES: Teaching experience and CIED 7540 or consent of the instructor. (Offered Fall and Spring).

7542-8542. Alternative Procedures for the Treatment of Reading Problems. (3). Application of differentiated instruction within a clinical setting to meet the needs of the disabled reader. PREREQUISITES: CIED 7540 and 7541 or consent of instructor. (Offered Spring).

7543-8543. Advanced Reading Instruction for the Special Learner. (3). Etiology of reading disabilities unique to various types of handicapped children. Planning and treatment selection related to gifted and talented, learning disabled, mentally retarded, physically handicapped and other categories of special learner. (Offered Spring/Odd Years).

7544-8544. Reading and Study Skills in the Content Areas. (3). Research based theories and steps necessary for academic disciplines; techniques for improving vocabulary, cognition, study skills, and reading rate. (Offered Fall and Summer).

7545. Teaching Reading in Subject Areas. (2). Methods, materials, and organizational patterns by which reading skills are developed and improved through integration with teaching strategies in subject areas.

7546-8546. Computer Applications in Reading Instruction. (3). Incorporating computers in the reading classroom and curriculum development of educationally relevant reading programs. PREREQUISITE: CIED 7-8060 or permission of instruction. (Fall/Even Years).

7547-8547. Reading Clinic. (3-6). Emphasis on practical experiences of clinical diagnosis and treatment. PREREQUISITES: CIED 7540-8540 or consent of the instructor. (READ 7841-8841).

7548-8548. Advanced Seminar in Reading Research (3-6). Survey and analysis of reading research to create background information for study of selected topics in reading; translating research into practical applications in classroom and school. PREREQUISITE: EDRS 7521. (Offered Spring/Odd Years).

7800-8800. Reading Research Practicum. (3). Either a clinical or field-based component; the conduct of research and/or advanced diagnostic and remediation experiences and development of area research paper required. (Offered Fall).

SCIENCE EDUCATION

7600-8600. Teaching Science in the Elementary School. (3). Current developments in elementary science education in both process and strategies of teaching science. Examination of classroom teaching practices appropriate for elementary school science instruction.

7601-8601. Elementary School Science Curriculum. (3). Examination of science curriculum materials. Focus on procedures for evaluation of curriculum and materials and analysis of local curricula in science. Includes techniques for conducting science workshops and inservice programs.

7602-8602. Teaching Science in the Secondary School. (3). An examination and analysis of modern science teaching strategies in the secondary school. Emphasis on information processing and classroom learning strategies.

7603-8603. Secondary School Science Curriculum. (3). Analysis of secondary science content and materials. Emphasis on current concepts of the science curriculum and the selection of appropriate materials for teaching the various sciences.

7608-8608. Seminar in Science Education. (3). A survey of selected problems and topics in science education.

SOCIAL STUDIES EDUCATION

7650-8650. Teaching of Social Studies in the Elementary School. (3). Consideration of principles and techniques for teaching social studies in the elementary school.

7651-8651. Curriculum Development in Elementary Social Studies. (3). Emphasis on current curriculum developments consistent with the needs, interests, and social problems of elementary school children. Includes research, new programs and issues related to social studies curriculum.

7652-8652. Teaching of Social Studies in Secondary School. (3). Consideration of principles and techniques for teaching secondary social studies.

7653-8653. Secondary Social Studies Curricula. (3). Analysis of programs and curricular materials for secondary social studies education.

7658-8658. Seminar in Social Studies Education. (3). A survey of current emphases in social studies education.

GIFTED EDUCATION

7801-8801. The Talented and Mentally Gifted. (3). (Same As SPED 7801-8801). Historical and societal perceptions and definitions of the talented and mentally gifted individuals their social, emotional and learning processes.

7802-8802. Special Populations of the Gifted. (3). (Same As SPED 7802-8802). Examination of the nature and needs of gifted and talented students whose performance is affected by some condition interfering with optimal growth. PREREQUISITE SPED 7801.

7811-8811. Methods of Teaching the Gifted and Academically Talented. (3). (Same As SPED 7811-8811). Teaching strategies for fostering gifted behavior at preschool, elementary and secondary levels. Procedures and criteria for evaluating curriculum sequences and guides, alternative strategies for curriculum development the writing and implementing of individualized educational plans PREREQUISITE SPED 7801-8801.

7822-8822. Advanced Methods of Teaching Gifted and Academically Talented. (3). (Same As SPED 7822-8822). Examination of provisions of services to gifted students in other than traditional enrichment programs. PREREQUISITES SPED 7801, 7811.

7850-8850. Supervision of Student Teaching. (3). Principles and techniques of student teaching supervision. Designed for supervising teachers, administrators, coordinators of student teaching programs, and college personnel.

7950-59-8950-59. Advanced Topics in Curriculum & Instruction. (1-3). Current topics in areas of curriculum and instruction at advanced levels. May be repeated with change in topic and content emphasis. See *Schedule of Classes* for topics.

7991-8991. Independent Study in Curriculum and Instruction. —, (1-9). Includes special problems, field studies, and other similarly organized professional experiences under the direct supervision of a faculty member within the department. Emphasis on student planning, initiating, conducting, and completing independent studies, projects, etc., designed to meet programmatic goals and individual needs.

†**7996. Thesis. (1-6).** Prospectus must be approved by the faculty committee directing this research study. Application for writing thesis must be filed with the Dean of Graduate Studies at time of registration.

†**8000. Specialist Culminating Experience. (1-6).** Thesis, internship, field study, or special project designed under direction of student's committee. Serves as capstone experience in Education Specialist Program.

†**9000. Doctoral Dissertations. (1-12).** Credit may be earned over a period of several semesters. The dissertation may be an organized scientific contribution or a comprehensive analysis of theory and practice in a specific area.

LIBRARY SCIENCES

6111. Library Materials for Children. (3). (LIBS 6111). Evaluation and selection of books and related library materials for leisure interests and curriculum needs of elementary school children; extensive reading, introduction to selection criteria, bibliographic aids, authors and illustrators and types of literature and information books.

6121. Library Materials for Young People and Adults. (3). (LIBS 6121). Evaluation and selection of books and related library materials for leisure interests and curriculum needs of young people and adults from

junior high school up; extensive reading, introduction to selection criteria, bibliographic aids, authors and illustrators and types of literature and information books.

7730. Foundations of Librarianship. (3). (LIBS 6504, CIED 6504). Introduction to librarianship as a profession and library as institution in cultural and political setting; influences of social issues, societal needs, professional organizations, and federal legislation on goals, ethics, organization, programs, and problems of libraries and librarians.

7731. Introduction to Bibliography. (3). (LIBS 6121, CIED 6501). Theory and purpose of bibliography as form of access to information; emphasis on general reference sources; introduction to principles, practices, and methods of reference service.

7132. Cataloging and Classification. (3). (LIBS 6502, CIED 6502). Introduction to principles and techniques of cataloging and classification of books and other library materials.

7133. School Library Administration. (3). (LIBS 6503, CIED 6503). Organization and administration of elementary and secondary school libraries, including standards, evaluation, facilities, equipment, support, student assistants, and relationship to instructional and guidance programs of school.

GENERAL

6601. Workshop in Curriculum and Instruction: Environmental Education. (3). Overview of environmental issues and problems; curriculum development, implementation, and evaluation.

6701-10. Workshop in Curriculum and Instruction. (1-9). Various areas of the curriculum and elements of instruction are explored. Active student participation is included. See departmental listing in *Schedule of Classes* for exact subtitles.

6950-59. Special Topics in Curriculum and Instruction. (1-3). Designed to allow for study of current topics in the areas of curriculum and instruction at all levels. May be repeated with a change in topic and content emphasis. See departmental listing in *Schedule of Classes* for exact sub-titles.

7701-8701. Advanced Workshop in Curriculum and Instruction. (1-9). Various areas of curriculum and elements of instruction at advanced levels. Active student participation. Topics vary. See *Schedule of Classes*.

7704-8704. Workshop: Newspaper in the Classroom. (3).

7705-8705. Classroom Organization and Instructional Management. (3). Development of instructional, organizational, and management skills to create positive learning environment.

†**7800-8800. Internship in Curriculum and Instruction. (1-12).** Includes student teaching, supervised practicum, and other similarly organized professional experiences. Designed to compliment on-campus course study with actual on-site professional experience.

- 001. Internship in Kindergarten. (3-9).
- 002. Student Teaching in Kindergarten. (3-9).
- 003. Internship in Elementary School. (3-9).
- 004. Student Teaching in Elementary School. (3-9).
- 005. Internship in Secondary Schools. (1-9).
- 006. Student Teaching in Secondary School. (3-9).
- 007. Internship in College Teaching. (3-9).
- 008. Internship in Adult Education. (3-9).
- 009. Practicum in Reading. (3-9).
- 010. Practicum in Instructional Media. (3-9).
- 011. Internship in Montessori Education (3-12).
- 012. Practicum in ESL. (3-6).

† Grades of S, U, or IP will be given.

EDUCATIONAL ADMINISTRATION AND SUPERVISION

SAM LUCAS, Ed.D., *Interim Chair*

Room 101

The College of Education Building

FRANK W. MARKUS, Ph.D., *Coordinator of
Graduate Studies*

I. In the Department of Educational Administration and Supervision, qualified students may earn the following degrees: the Master of Education (M.Ed) or the Master of Science (M.S.) with a major in Educational Administration and Supervision, and the Doctor of Education (Ed.D) with a major in Educational Administration and Supervision and a General concentration or an Adult, Continuing and Community Education concentration.

Program Admission: Applicants are required to meet admission criteria established by the Graduate School and outlined in the *Graduate Catalog* under "Admissions and Regulations."

II. M.S. Degree Program

A. *Prerequisites for admission to degree candidacy.*

1. A grade point average of 3.0 on a 4.0 scale.
2. A personal interview with departmental personnel.



B. Program Requirements

1. A total of 36 semester hours is required for the degree.
2. 18 to 21 semester hours in EDAS including EDAS 7050, 7100 and 7400.
3. 3 semester hours in research (EDRS 7521).
4. 6 to 9 semester hours selected from offerings outside the College of Education, which are supportive to the major and provide the "best" fit among student identified needs and career objectives.

III. M.Ed. Degree Program**A. Prerequisites for Admission to Degree Candidacy**

All admission requirements listed below must be satisfied before registering for any additional course work applicable to the degree:

1. A grade point average of 3.0 on a 4.0 scale.
2. A personal interview with departmental personnel.
3. Two letters of recommendation.
4. A professional teacher's certificate.

B. Program Requirements

1. The overall requirements are 33 hours
2. EDAS 7000, 7050, 7100, 7130, 7140, 7160, 7180, and either 7111, or 7311.
3. EDRS 7521 and CIED 7002.
4. Three semester hours of adviser approved courses chosen from an appropriate discipline within the university.
5. Two years of successful teacher and/or administrative experience at the appropriate educational level.

IV. Ed.D. Degree Program

A. *Individuals having met the general standards for admission to the Graduate School, at the doctoral level, as outlined in the Graduate Catalog, may be eligible for admission to the Ed.D. program in EDAS, according to the following criteria:*

1. The prospective student must hold a Master's degree from an accredited institution.
2. Previous academic and professional experience should demonstrate probable success in a doctoral (Ed.D.) program.
3. The prospective student will further be evaluated for acceptance pending the following items:
 - a. Academic records: Applicants grade point average (for all post-baccalaureate work) should be 3.0 or higher on a 4.0 scale.
 - b. Recommendations: Two letters of recommendation will be required from former professors, colleagues, or employers.
 - c. Personal Statement and Resume: Applicants will submit a written statement of career goals and objectives, along with a current resume of academic and professional experiences.
 - d. Interview: Applicants will schedule a personal interview with the departmental admission committee, whereupon appropriate recommendations will be made.

B. *Transfer credit: Upon approval of the department admission committee acceptable credits (maximum of 30 hours) earned in another institution(s), will be applied toward Ed.D.*

C. Program requirements (General Educational Administration Concentration):

1. A minimum of 99 semester hours of graduate work beyond the bachelor's degree, with a minimum of 21 semester hours in courses numbered 8000 or above (Approved masters hours will apply, according to the decision of the Admission Committee).
2. The major concentration will consist of 48 to 63 semester hours including EDAS 7000, 7050, 7100, 7-8130, 7-8140, 7-8160, 7-8180, and 7-8811 and 12 semester hours in dissertation (EDAS 9000).
3. A minimum of 9 semester hours of research (EDRS 7521, 8541, and 8522 or 8542).
4. A college core of 9 semester hours of courses in cultural foundation or education psychology including CIED 7002.
5. Collateral(s) and supportive collateral courses.
6. Completion of the college and university residency requirements.

D. Program Requirements (Adult, Continuing and Community Education Concentration):

1. A minimum total of 99 semester hours of graduate credit beyond the bachelor's degree, with a minimum of 21 semester hours selected from courses numbered 8000 and above.
2. 48-63 hours in the major which must include:
 - a. EDAS 7100, 7050, 8800, 8611, and 8612.
 - b. 12-36 hours supportive to the concentration and approved by the student's advisory committee.
 - c. 12 hours in EDAS 9000.
3. 6 to 12 hours to be chosen from CIED 7002 and cultural and psychological foundations.
4. 9 hours in research: EDRS 7521, 8541, and 8522 or 8542.
5. *6-18 hours from the College of Education (outside the major) appropriate to the major or concentration.
6. *15-33 hours from outside the department appropriate to the major or concentration. Normally these are to be taken in the behavioral, social or management sciences.
7. Within the 99 hour requirement for this program, students must include the following courses: CIED 7250, 7255, and 7256.
8. Completion of the college and university residency requirements.
9. Three years of successful teaching and/or administrative experience or other appropriate experiences are required.

* The critical requirement is that these supportive collateral studies and the work in the major concentration result in a coherent combination which has the complexity, depth, and breadth appropriate for a quality program.

V. Professional Endorsements

All programs designed for certification are approved by the National Council for the Accreditation of Teacher Education (NCATE).

M630 EDUCATIONAL ADMINISTRATION AND SUPERVISION (EDAS)**7000. Human, School and Community Relations.**

(3). Focuses on human relations in the context of schools and community movements. Civic, governmental, and cultural organizations. School activities and their relationship to the home and the community.

7050. The Supervisory Process in an Educational Environment. (3). A base of theory and methodology for building more effective and productive approaches to leadership responsibilities for educational supervision. Significant areas of particular relevance to working with instructors in educational activities emphasized.

7100. Introduction to Educational Administration. (3). An introductory treatment of educational administration, including theory/practice, scope, task areas, processes and procedures, problems/issues, and types of personnel needed in the United States.

7111-8111. Elementary School Administration and Supervision. (3). Acquaints prospective elementary school administrators and supervisors with practices in organizing, supervising, and administering in a school setting. Practical administrative and supervisory experiences. PREREQUISITES: EDAS 7050 and 7100 or permission of instructor.

7130-8130. Finance and Business Management in Education. (3). Theory and practice of financing education in the United States, developing guiding principles of educational finance and the role of business management in education.

7140-8140. Educational Technology, Facility, and Resource Utilization. (3). Considers plants, sites, equipment (instructional and other), planning, financing, construction, maintenance and architectural contractual services.

7160-8160. Administration of Educational Personnel and Negotiations. (3). Educational personnel administration including: staff goals, policies, recruitment, induction, roles, evaluation, development, continuity of service and negotiations.

†7170-8170. Practicum in Educational Administration and Supervision. (1-6). Semester long practical experiences under supervision of a professor

and a practicing administrator in: administration, supervision, school-community relations, finance, plant, or transportation. (Prospective enrollees should secure approval from department thirty days prior to registration).

†7171-8171. Internship in Educational Administration and Supervision. (1-6). Long term work experiences under supervision of a professor and/or a practicing administrator in: administration, supervision, school-community relations, finance, plant, or transportation. (Prospective enrollees should secure approval from the department thirty days prior to registration).

†7172-8172. Practicum in Higher Education Administration. (1-6). Semester long practical experiences under supervision of a professor and a practicing administrator in: administration, records and admissions, student personnel services, plant planning and management, community service, or research. (Prospective enrollees should secure departmental approval thirty days prior to registration).

†7173-8173. Internship in Higher Education Administration. (1-6). Long term work experiences under the supervision of a professor and/or a practicing administrator in: administration, records and admissions, student personnel services, plant planning and management, community service, or research. (Prospective enrollees should secure departmental approval thirty days prior to registration).

7180-8180. Educational Law. (3). Federal and State statutes and local regulations applicable to education. Legal requirements and their implications for educational operation. Legal research methods and case law.

7190-8190. Overview of Higher Education. (3). An orientation to higher education which deals in breadth with the facets of higher education vital to an understanding of the field. Designed to build a professional perspective toward higher education.

7191-8191. The Community College. (3). A survey of the history and philosophy of the community college, its place and function, establishment and control, administration, curriculum, staff, supporting physical plant, student population, guidance, and public relations.

7192-8192. The Organization and Structure of Higher Education. (3). Educational policies, functions, and practices in the administration of higher institutions, with emphasis upon the various types of organizational structure and services.

7311-8311. Secondary School Administration and Supervision. (3). Acquaints prospective secondary school administrators and supervisors with practices in organizing, supervising, and administering secondary schools. Practical administrative and supervisory experiences. PREREQUISITES: EDAS 7050 and 7100 or permission of instructor.

7370-8370. Educational Administration Performance Laboratory. (1-6). Laboratory experience such as gaming and simulation are provided to illustrate administrative competencies necessary in managing complex organizations, information systems, computers, applications, network planning and projection systems.

7400. Leadership Exploration Seminar. (1-6). The individual student's study of his relationship to and prospects for a career in educational administration.

7440-8440. Microcomputer Applications in Educational Administration. (3). Understandings and applications of computer's role in educational administration and supervision. Uses of computer as a delivery system for information in areas such as budgeting, attendance, scheduling student records, and inventory. PREREQUISITE: EDRS 6530 or permission of instructor.

7500-8500. Issues in Educational Leadership. (3). Issues confronting leaders in American education and currently before the profession and the public.

7510-8510. Seminar in Educational Leadership. (1-6). For persons in positions of educational leadership. Problems and issues which derive from trends in our present day culture. Emphasizes the impact upon educational leadership.

7515-25-8515-25. Workshop In Educational Administration. (1-3). Focuses on a variety of administrative topics, one of which will be emphasized in each workshop. Course may be repeated; however, no more than 3 hours credit may be received in one topic. Specific topics will be listed in the *Schedule of Classes*.

7550-59-8550-59. Workshop in Educational Supervision. (1-3). Focuses on a variety of supervisory topics, one of which will be emphasized in each workshop. Course may be repeated; however, no more than 3 hours credit may be received in one topic. Specific topics will be listed in the *Schedule of Classes*.

7611-8611. Community Education Administration. (3). Emphasizes organizational aspects of community education programs including: administration and supervision of personnel and citizen/community participation in formulating, implementing and evaluating community education programs.

7612-8612. Adult and Continuing Education Administration. (3). Organization and administration of Adult and Continuing Education including: adult remedial, vocational-technical, community, and secondary/collegiate continuing education programs. Content includes: administrative methods and materials appropriate to adult habits and needs, interpreting current legislation and research relating to adult and continuing education programs; planning, implementing and evaluating strategies.

7700-8700. Readings and Research Problems in Human School and Community Relationships. (1-3).

7710-8710. Readings and Research Problems in General Educational Administration. (1-3).

7712-22-8712-22. Special Topics in Educational Administration. (1-3). Current topics in educational administration. May be repeated with a change in content. See *Schedule of Classes* for topic.

7730-8730. Readings and Research Problems in Educational Finance and Business Management. (1-3).

7740-8740. Readings and Research Problems in Educational Plant and Transportation. (1-3).

7750-8750. Readings and Research Problems in Educational Supervision. (1-3).

7751-59-8751-59. Special Topics in Educational Supervision. (1-3). Current topics in educational supervision. May be repeated with a change in content. See *Schedule of Classes* for topic.

7760-8760. Readings and Research Problems in Administration of Educational Personnel and Negotiations. (1-3).

7780-8780. Readings and Research Problems in Educational Law. (1-3).

7790-8790. Readings and Research Problems in Higher Educational Administration. (1-3).

7810-8810. Politics and Power in Educational Leadership. (3). Field study of techniques and strategies for leaders in education to discover sources of community power influencing school and education policy.

7811-8811. Policy Implementation in Educational Administration. (3). (7711-8711). Emphasizes development and implementation of administrative policy at the local, state, and national levels in relation to forces which shape the thinking of policy making bodies.

†7996. Thesis. (1-6).

†8000. Specialist Culminating Experience. (1-6). Thesis, internship, field study, or special project designed under the direction of student's committee. Serves as capstone experience in Educational Specialist Program.

8200. The Administration of Instructional Programs and Materials. (3). Practices and the processes used by administrative and supervisory leaders who plan, organize, and co-ordinate the professional activities of teachers in facilitating learning. PREREQUISITE: Permission of instructor.

8220. The Economics of Education. (3). The broader economic implications of education in the United States.

8320. Higher Education Finance. (3). Fundamental considerations in the financing of institutions of higher education. Special attention given to sources and methods of securing funds, development programs, procedures for budget development and analysis, and other financial and economic aspects of higher education administration.

8360. Collective Bargaining in Education. (1-3). Analysis of bargaining in education including history, issues, resource data, proposals, table tactics, contract language, impasse procedures, roles, and career

opportunities in educational negotiations. PREREQUISITE: MGMT 6220 or permission of instructor.

8380. Higher Education Law. (3). The legal principles and significant legal constraints within which institutions of higher education function with particular emphasis on structure, personnel, programs, property and finance.

8800. Theories, Practices and Research in Educational Administration. (1-6). Basic theories of organization and administration, philosophical and historical foundations of theories, research and development in theory formulation using current practices as examples. PREREQUISITE: EDAS 7100 or permission of instructor.

†9000. Doctoral Dissertation. (1-9).

† Grades of S, U, or IP will be given.

FOUNDATIONS OF EDUCATION

E. DEAN BUTLER, Ed.D., *Interim Chair*

Room 404 The College of Education Building

ERNEST A. RAKOW, Ph.D., *Coordinator of Graduate Studies*

I. Graduate study in the Department of Foundations of Education is designed to (1) develop understanding of the socio-cultural influences shaping the policies, design, and conduct of formal education; (2) gain competence in dealing with the variables related to teaching and learning; and (3) encourage the development of abilities which facilitate systematic and scholarly inquiry into the structure and consequences of educational endeavors.

II. The Department of Foundations of Education offers graduate programs leading to the Master of Science, Education Specialist, and Doctor of Education degrees.

III. M.S. Degree Program

A. Program Admission

1. Admission to The Graduate School.
2. Grade point average of 2.5 on a 4.0 scale.
3. Satisfactory performance on the GRE.
4. 3 letters of recommendation.

5. Approval of the appropriate Faculty Admissions Committee which considers applications at least once each semester. Each faculty (research methodology, educational psychology, cultural foundations) admits students to their own concentration. Interim advisors are assigned upon admission and serve until the student has completed a minimum of 6 to 9 hours. At that time the student may select a major advisor and a two member committee.

B. Program Requirements

1. Minimum of 36 semester hours.
2. Major of 21-27 hours.
3. 3 hours in the College Research Core (EDRS 7521 or 7523).
4. 6-12 hours of committee approved supportive courses chosen from appropriate disciplines within the university.
5. Satisfactory completion of a written comprehensive examination.
6. Concentrations

a. Cultural Foundations

1. Major: EDFD 7000 and 7001, EDPS 7121 and EDRS 7511 or 7541 or appropriate equivalent approved by the student's major advisor and 9 hours of electives.
2. 12 hours of committee approved supportive courses chosen from appropriate disciplines within the university.

b. Research Methodology and Statistics

1. Major: EDFD 7000, 7001, EDPS 7121 or appropriate equivalent approved by the student's major advisor, EDRS 7541, 7581, and 7542 or 7522 plus 9 hours of electives from the following: (1). Qualitative: EDRS 7522, 7561; (2). Computer Applications: EDRS 6530, 7531; (3). Assessment: EDRS 7511, 7512, 7513, 7514, 8519; (4). Evaluation: EDRS 7551; (5). Statistics: EDRS 7542, 8543, 8549; (6). Inst. Res./Higher Ed.: EDRS 7572, 7573.

2. 6 hours of committee approved supportive courses chosen from appropriate disciplines within the university.

c. Educational Psychology

1. Major: EDFD 7000, 7001, EDPS 7121 and EDPS 7111 or 7112 or appropriate equivalent approved by the student's major advisor; EDRS 7511 or 7541 or appropriate equivalent approved by the student's major advisor and 9 hours of electives from the following: (1). Human Development: EDPS 7110, 7111, 7112, 7113, 7114, 7161; (2). Learning & Instruction: EDPS 7121, 7132, 7149, 7149, 7150, 7151.

2. 6-9 hours of committee approved supportive courses chosen from appropriate disciplines within the university.

IV. Ed.D. Degree Program

Concentration areas are available in Cultural Foundations, Educational Psychology, and Research Methodology and Statistics.

A. Program Admission

The student must meet the general admission requirements of the Graduate School and the College of Education in order to qualify for admission to the program.

B. Program Requirements (Cultural Foundations and Educational Psychology concentrations)

1. A minimum of 99 semester hours of graduate work beyond the bachelor's degree approved by the candidate's Advisory Committee with a minimum of 21 semester hours in courses numbered 8000 or above.

2. A minimum of 48 semester hours in the major, to include 21 semester hours of departmental core: EDFD 8001, 9000, EDPS 8121, EDRS 7511. The required research sequence of 9 semester hours may not be used to fulfill this requirement.

3. 9 semester hours in research: EDRS 7521, 8541, and 8522 or 8542.

4. Collateral studies of 18-33 semester hours selected from outside the Department of Foundations of Education, approved as supporting the major area of study.

C. Program Requirements (Research Methodology and Statistics concentration)

1. A minimum of 99 semester hours of graduate work beyond the bachelor's degree approved by the candidate's Advisory Committee with a minimum of 21 semester hours in courses numbered 8000 or above.

2. A minimum of 48 semester hours in the major, to include 21 semester hours of departmental core: EDFD 8001, 9000, EDPS 8121, EDRS 7511. The required research sequence of 9 semester hours may not be used to fulfill this requirement.

3. 9 semester hours in research: EDRS 7521, 8541, and 8522 or 8542.

4. College Core: 9 semester hours of courses in cultural foundations or educational psychology.

5. Collateral studies of 18-33 semester hours selected from outside the department and approved as supporting the major area of study.

Further information pertaining to advanced degrees may be obtained by contacting the chair of the department.

M700 CULTURAL FOUNDATIONS (EDFD)

6051. Anthropology and Education. (3). (ANTH 6051). The cultural transmission process with emphasis on different behavioral, cognitive, and learning styles of various ethnic groups within American society and selected third world countries, and U.S. subcultural groups within the public education system.

†7000. Masters Thesis/Research Project (1-6). Thesis or research project that is presented or published, designed under direction of student's committee, and completed while completing M.S. degree; capstone experience for Masters degree program. May be repeated for a maximum of 6 credit hours.

7001-8001. Foundations of Education. (3). Historical, philosophical and social forces influencing the policies and practices of American education.

7002-8002. Historical and Cultural Perspectives on Higher Education. (3). Historical development of higher education in the United States and other

countries, and cross-cultural differences in major national higher education systems. Application of these historical and cross-cultural perspectives to a major issue or problem area facing U.S. higher education.

7003-8003. Foundational Studies: Schools and American Society. (2-3). Analysis of philosophical, cultural, and historical dimensions of education; history of American education, development of educational policies and historical foundations of contemporary issues.

7004. Cultural Foundations of Education for Pupil Services. (3). Analysis of philosophical, socio-cultural, and historical dimensions of educational policies and practices relating to pupil services in American public schools.

7006-15-8006-15. Special Topics in Educational Foundations. (1-3). Current topics in foundations of education. May be repeated with a change in content.

7008-8008. Special Problems in Cultural Foundations of Education. (1-3). Individually directed reading, field study, or research; written report required. May be repeated for a maximum of 9 credits. PREREQUISITE: permission of department chair and instructor.

7021-8021. Philosophical Foundations of American Education. (3). A critical examination of the basic principles of the major philosophy of education theories which have influenced the development of modern public education.

7022-8022. Philosophical Analysis in Education. (3). The use of philosophical techniques of logical and linguistic analysis with problems of philosophy and theory in education; the activities of teaching; value theory and education; and knowledge, teaching, and learning.

7029-8029. The Future American College. (3). Investigation of theory and research in adult development and learning with implications for future policy reform and institutional developments in higher education. Various field experiences will be required.

7033-8033. Education and the Political System. (3). Relationships between political ideas and functions in education with political dimensions of society; focus on theoretical frameworks through which the interactions of the school and political systems can be analyzed and evaluated.

†8000. Specialist Culminating Experience. (1-6). Thesis, internship, field study, or special project designed under direction of student's committee. Serves as capstone experience in Education Specialist Programs.

†9000. Doctoral Dissertation. (1-6). Credit may be earned over a period of several semesters. The dissertation may be an organized scientific contribution or a comprehensive analysis of theory and practice in a specific area.

† Grades of S, U, or IP will be given.

M710 RESEARCH METHODOLOGY AND STATISTICS (EDRS)

6530. Microcomputers in Education: Theoretical and Technical Foundations. (3). History, development, and status of microcomputers in education and introduction to technical knowledge and skills needed to operate microcomputers for specialized educational applications. Course is designed to provide prerequisite knowledge for more advanced computer-related training in different education specialty areas.

7501-05-8501-05. Special Topics in Research Methodology. (1-3). Current topics in evaluation, research and statistical methods applicable to education. May be repeated with a change in content.

7511. Measurement and Evaluation. (3). Test construction, test statistics, and interpretations and applications of standardized test results.

7512-8512. Psychometric Theory and Educational Application. (3). Psychometric principles and applications to tests, rating scales, questionnaires and other standardized instruments used in educational research; problems associated with evaluation of items and instruments in terms of reliability and validity. PREREQUISITE: EDRS 7511, 7521, 7541-8541, or permission of instructor.

7513-8513. Development of Assessment Instruments. (3). Desired characteristics of tests and their

development; designing content and item specifications, item construction, forms development, and reporting considerations. PREREQUISITES: EDRS 7511 or permission of instructor.

7514-8514. Administration of Assessment Programs. (3). Overview of large scale, district or state wide testing programs; planning assessment program, contracting, selections, and training of subordinate administrators, test scoring software and procedures, security arrangements, and reporting of test results. PREREQUISITES: EDRS 7511 or permission of instructor.

7518-8518. Special Problems in Research Methodology. (1-3). Individually directed reading, field study or research; written report required. May be repeated for a maximum of 9 credits. PREREQUISITE: permission of department chair and instructor.

7521. Introduction to Educational Research. (3). Introduction to major concepts and processes underlying educational research. Focus on knowledge necessary for critically appraising published research and preparing students as research consumers.

7522-8522. Advanced Educational Research. (3). Philosophical aspects of the scientific method in education; functions of paradigms, theories and models in inquiry; theory development and validation; major types of analytical, qualitative and descriptive inquiry appropriate to the study of educational phenomena. PREREQUISITE: EDRS 7521 and 7541-8541 or permission of instructor.

7523. Applied Educational Research. (1-3). Conducting and interpreting research concerned with learning and teaching. Statistical and research methods, interpretation of literature, report writing, and development of proposal for research project.

7531-8531. Computer as a Research Tool. (3). Computer applications to research processes in education and the behavioral sciences; capabilities and limitations of computers in analysis of educational data; experience in the utilization of various (statistical) library programs. PREREQUISITE: Introductory statistics and programming or permission of the instructor.

7541-8541. Statistical Methods Applied to Education I. (3). Utilization and interpretation of statistical methods applied to education. Topics include frequency distributions, central tendency, variability, correlation, linear regression, introduction to probability, normal distribution, interval estimation, hypothesis testing via t test and chi square and computer utilization in statistical analysis. PREREQUISITE: EDRS 7521 or permission of the instructor.

7542-8542. Statistical Methods Applied to Education II. (3). Includes one-way and two-way analysis of variance, a priori and post hoc tests of significance, and an introduction to multiple linear regression. Emphasis is placed on student acquisition of practical intermediate univariate analytic and interpretative skills. PREREQUISITE: EDRS 7541-8541 or permission of instructor.

7551-8551. Introduction to Evaluation Systems. (3). Examines procedures and problems in utilization of evaluation and in identifying its purposes; treats the functions and methods of evaluation especially as affected by organizational behavior and political influences. Evaluation methodology includes but is not limited to design considerations, data utilization, and concepts and methods of needs assessment.

7561-8561. Ethnographic Methods in Education. (3). Issues, procedures, and problems of conducting ethnographic research in education settings; focus on learning and applying observation and interview strategies, data management and analysis and report writing; use of questionnaires and building questionnaires from ethnographic data.

7572-8572. Institutional Research in Higher Education. (3). (7502-8502). Techniques of institutional analysis in designing self-studies, evaluating the teaching and learning environment and institutional planning. PREREQUISITE: EDRS 7521 or equivalent.

7573-8573. Applications of Institutional Research to Planning in Higher Education. (3). (7503-8503). Introduction to theory and methods of planning within context of educational systems; systems theory, project and institutional planning; techniques such as systems modeling, decision analysis, enrollment forecasting, futures planning, and budgetary and cost analysis.

7581-8581. Supervised Research. (3). (7301-8301). Supervised participation in planning, design, manage-

ment, analysis, and reporting of research. PREREQUISITE: Minimum of 12 hours in the major.

8519. Seminar in Educational Measurement. (3). Systematic investigation of advanced topics in the field of educational measurement. A prior course in educational statistics is recommended.

8529. Seminar in Research Applications for Educators. (3). Content and organization of educational research proposals based on logical consistency and valid research principles. Topics: research problem selection, literature review, statement of research problem, research questions, hypotheses, research procedures, and data analyses. PREREQUISITE: Permission of instructor and approval of major adviser. (S/U).

8543. Research Design and Analysis. (3). Includes validity of research designs, complex analysis of variance, and analysis of covariance; emphasis is on practical advanced univariate and analytic and interpretative skills. PREREQUISITE: EDRS 8542 or permission of instructor.

8549. Seminar in Educational Statistics. (3). Systematic investigation of current or advanced topics in the field of educational statistics. PREREQUISITES: An advanced statistical methods course and permission of instructor.

M720 EDUCATIONAL PSYCHOLOGY (EDPS)

7101-06-8101-06. Special Topics in Educational Psychology. (1-3). Current topics in educational psychology. May be repeated with a change in content.

7108-8108. Special Problems in Educational Psychology. (1-3). Individually directed reading, field study, or research; written report required. May be repeated for a maximum of 9 credits. PREREQUISITE: permission of department chair and instructor.

7110-8110. Infant Development. (3). Infancy and toddlerhood from developmental research issues perspective; empirical studies and contemporary issues relating to factors influencing infant development.

7111-8111. Child Psychology Applied to Education. (3). Major theories of child psychology and their implications for educational practices with the pre-school and elementary school child.

7112-8112. Adolescent Psychology Applied to Education. (3). Advanced academic and laboratory study of the psychological environments of adolescents; emphasis on behavioral antecedents and consequences in adolescents that relate to secondary school personnel or others who work with adolescents.

7113-8113. Midlife and Adult Development. (3). Cognitive, emotional, and psychosocial theories and research on middle age and adult development.

7114-8114. Human Development: Maturity and Aging. (3). Cognitive and psychosocial developmental theories of aging and implications for life-span education. PREREQUISITE: EDPS 7111 or 7112 or permission of instructor.

7121-8121. Learning Theories Applied to Education. (3). Major theories of learning, current research on learning, and implications for educational practice; application of established principles of learning to practical educational problems. Topics covered include motivation, cognition, retention, forgetting, problem-solving, and transfer as these relate to pupil and teacher personality development.

7132-8132. Personality Variables in Classroom Teaching. (3). Role of teacher and student personality variables as they influence the teaching/learning process.

7149-8149. Seminar in Cognitive Processes Applied to Education. (3). Information processing, computer simulation of intelligence, critical thinking, memory, problem solving of normal and atypical learners with applications made for classroom instruction. PREREQUISITE: EDPS 7121.

7150-8150. Motivation. (3). Theoretical and research viewpoints on motivation from cognitive perspective; applications to educational and industrial setting. PREREQUISITE: EDPS 7121 or 7149 or permission of instructor.

7151-8151. Adaptive Instructional Models. (3). Theoretical foundations of instructional models designed to adapt learning to individuals. Topics include programmed instruction, computer-based instruction,

competency-based (PSI) models, token economy systems, peer tutoring strategies, and contemporary theoretical models pertaining to behavior modification, aptitude-treatment interactions, and adaptive instruction. **PREREQUISITE:** EDRS 7521.

7161-8161. Moral Development and Education. (3). Current research and theory of moral and ethical development across life-span and educational implications.

8171. Seminar in Human Development. (3). Research issues in human development; specifically focused on adolescence, midlife, aging, and implications across age groups. **PREREQUISITE:** EDPS 7121 or 7113 or 7114.

HEALTH, PHYSICAL EDUCATION, AND RECREATION

MELVIN A. HUMPHREYS, Re.D.,

*Chair and Coordinator of Graduate Studies
(Recreation)*

Room 106 Field House

MICHAEL H. HAMRICK, Ed.D., *Coordinator of
Graduate Studies (Health)*

LARRY EDWARDS, Ed.D., *Coordinator of
Graduate Studies (Physical Education)*

I. The Department of Health, Physical Education and Recreation offers graduate programs leading to the Master of Education degree and the Master of Science degree with a major in Health, Physical Education and Recreation. Concentrations are available in Health, Physical Education and Recreation. The Master of Science with a major in Geriatric Services is offered with concentrations in Health Services and Geriatric Counseling.

II. M.Ed. Degree Program (School Health)

A. Program Prerequisites

1. Minimum state teacher certification requirements must be met prior to admission to graduate program.
2. Undergraduate major in health and physical education or health education of 27 semester hours.
3. Meet the university's requirements for admission to graduate school.
4. If, after evaluation of student's transcript, the faculty feels that there are academic deficiencies in courses, the student may be required to take stipulated undergraduate courses.

B. Program Requirements

1. A total of 30 semester hours for the student who elects to write an acceptable thesis.
2. A total of 33 semester hours if a thesis is not submitted.
 - a. Eighteen hours in professional health courses as follows: HLTH 7172, 7802, and health electives (12 semester hours).
 - b. Three semester hours from Educational Foundations (EDFD), Educational Psychology (EDPS), Research Methodology and Statistics (EDRS) or Curriculum and Instruction (CIED).
 - c. College of Education Core: EDRS 7521 Research Methodology and Statistics (3 hours).
 - d. Nine semester hours of courses approved as supporting the major area of study.
 - e. The successful completion of an oral and/or written examination.

III. M.Ed. Degree Program (Physical Education)

A. Program Prerequisites

1. Minimum state teacher certification requirements in Physical Education must be met prior to admission to graduate program.
2. Undergraduate major in health and physical education or physical education of 27 semester hours.
3. Meet the University's requirements for admission to graduate school.

4. If, after evaluation of student's transcript, the faculty feels that there are academic deficiencies in courses, the student may be required to take stipulated undergraduate courses.

B. Program Requirements

1. A total of 30 semester hours for the student who elects to write an acceptable thesis.
2. A total of 33 semester hours if a thesis is not submitted.
3. Physical Education courses: 18 semester hours
 - a. Physical Education Core: PHED 7103 Foundations of Physical Education (3 hours)
 - b. Physical Education emphasis electives: 15 semester hours physical education courses selected by student and adviser according to emphasis and student's needs and interest. The following areas of emphasis may be pursued: (1) Professional Physical Education and (2) Athletic Administration and Coaching.
4. Three semester hours from Educational Foundations (EDFD), Educational Psychology (EDPS), or General Curriculum (CIED 7002).
5. Three semester hours from Research Methodology and Statistics (EDRS) as follows: EDRS 7521.
6. Nine semester hours of approved supportive courses.
7. Successful completion of an oral or written examination.
8. Students who have not had a course in exercise physiology are required to take PHED 7183 or its equivalent.

IV. M.S. Degree Program (Fitness & Wellness)

A. Program Prerequisites

1. The student should have a background in either biological sciences or physical education sciences such as kinesiology, physiology of exercise, motor learning or biomechanics.
2. Meet the University's requirements for admission to graduate school.
3. If after evaluation of a student's transcript, the faculty feels there are academic deficiencies in courses, the student may be required to take stipulated undergraduate courses.

B. Program Requirements

1. A total of 36 semester hours is required.
2. Twenty-one hours in Health and Physical Education as follows: PHED 6401, HLTH 7182; PHED 7183, 7184, 7201-8201, and 7301.
3. Fifteen hours in supporting areas, including EDRS 7521, 7541; HMEC 7212; and 6 additional hours approved as supporting the major area of study.
4. The successful completion of a written comprehensive examination.
5. A thesis (3 hours) is optional.

V. M.S. Degree Program (Community Health)*

A. Program Prerequisites

1. Prior to admission to non-certified program the student must complete at least 6 semester hours in upper division undergraduate or graduate courses in psychological, historical, social or philosophical foundations.
2. Meet the University's requirements for admission to graduate school.
3. If after evaluation of student's transcript, the faculty feels there are academic deficiencies in courses, he may be required to take stipulated undergraduate courses.

B. Program Requirements

1. A total of 36 semester hours is required.
2. Community Health courses — 18 semester hours including HLTH 6602, HLTH 7712, HLTH 7722, and health electives (9 semester hours).
3. College of Education Core — 3 semester hours.

EDRS 7521 — Introduction to Educational Research (3).
4. Electives — 15 semester hours. These courses must be approved as supporting the major area of study.
5. The successful completion of an oral or written examination.

VI. M.S. Degree Program (Recreation)*

A. Program Prerequisites

1. Prior to admission to non-certified program the student must complete at least 6 semester hours in upper division undergraduate or graduate courses in psychological, historical, social or philosophical foundations.
2. Meet the University's requirements for admission to graduate school.
3. If, after evaluation of student's transcript the faculty feels that there are academic deficiencies in courses, he may be required to take stipulated undergraduate courses.

B. Program Requirements

1. A total of 36 semester hours is required.
 2. Recreation (and Parks) Courses — 18 semester hours.
 - a. Recreation Core — 6 semester hours.

RECR 7305 — Philosophy of Recreation and Leisure (3).

RECR 7405 — Program Planning (3).
 - b. Recreation Emphasis Electives — 12 semester hours.
- Recreation (and Parks) courses selected by student and adviser according to student's interests, needs and area of emphasis.

The following areas of emphasis may be pursued:

- (a) Public Recreation and Parks
- (b) Outdoor Recreation and Camping
- (c) Therapeutic Recreation
- (d) Recreation Program Administration
- (e) Commercial Recreation and Tourism
- (f) Professional Recreation Education

3. College of Education Core — 3 semester hours.

EDRS 7521 — Introduction to Educational Research (3).

4. Electives — 15 semester hours. These courses must be approved as supporting the major area of study.
5. The successful completion of an oral or written examination.

VII. M.S. Degree Program - Major: Geriatric Services

A. Program Prerequisites

1. Meet the University's requirements for admission to The Graduate School.
2. Application to program subject to review by the Gerontological Studies Advisory Committee.
3. Students in Geriatric Counseling concentration must have a minimum score of 37 on MAT.

B. Program Requirements

1. A total of 36 semester hours.
2. Major Core (18 semester hours): COUN 6782, EDPS 7114, HLTH 6182, SOCI 6541, EDRS 7521, SPER 7903
3. Concentration:
 - a. Health Services (18 semester hours): HLTH 7712, 7112, 7722, 7605, 6602, 6203. Thesis option may be elected to satisfy 6 hours of concentration requirement.
 - b. Geriatric Counseling (18 semester hours): COUN 7531*, 7581, 7882, 7883, 7651*, 7891*. COUN 7996, Thesis (3-6 hours) may be substituted for courses marked *.
4. Successful completion of written examination or thesis defense.

*NCATE does not accredit programs for non-certificated personnel.

M740 HEALTH (HLTH)

6182. Health Aspects of Gerontology. (3). Current issues and trends in gerontology. Emphasis on the effects and implications of these trends on the health and quality of life of the aging.

6202-20. Workshops in Health. Special study of selected phases of health education through group study. Designed for indepth study of areas of interest and need for persons in health education and related fields.

6203. Workshop in Death and Dying. (1-3).

6204. Workshop in Sexuality Education. (1-3).

6205. Workshop in Drug Education. (1-3).**6206. Workshop in Environmental Health. (1-3).**

6302. Observation in Community Health Agencies. (3). Introduction to the purposes, objectives, functions, services and programs of community health agencies with opportunities to visit and tour public and private agencies and interview various representatives.

6602. Organization and Administration in Public Health. (3). Basic functions, principles and procedures of organization and administration as applied to health. Emphasis is placed on relationship and responsibilities of personnel in planning, promoting, and improving and evaluating the total health activities in the family-centered health services.

6802. Environmental Health. (3). Complex association between the environment and human productivity, health and happiness. Disease producing relationships and controls of water, sewage, refuge, milk, meat, and other foods, air, insects and soil.

6902-11. Special Topics in Health. (1-3). Current topics in health. May be repeated with change in topic. See *Schedule of Classes* for topic.

7012-8012. Evaluation and Utilization of Health Instructional Materials and Media. (3). Analysis, evaluation, and application of health instruction materials and media.

7112-8112. Health Care Issues of the Elderly. (3). Review of national health policies, national health insurance, supplementary insurance and management approaches for elderly; analysis of home health care and nursing home industries.

7122-8122. Current Readings in Health. (3). Directed readings in the area of health. Materials selected to strengthen areas of study.

7132-8132. Health Law. (3). Emphasis on how law protects and enhances health through health professional licensure, facilities regulation, public financing, and public law.

7142-8142. Seminar in Health. (1-3). Special study of selected current problems in health. May be repeated for a maximum of 9 credits.

7152-8152. Special Problems in Health Education. (1-3). Independent study and/or research project on selected health problems or issues. PREREQUISITE: Consent of instructor.

7172. School Health Education. (3). History, principles, problems and trends of School Health Education.

7182-8182. Health Promotions in Fitness and Wellness. (3). Development of fitness and wellness programs in community and corporate settings, including assessment of program development, selection of personnel, administrative procedures, evaluation procedures, marketing techniques, and legal issues.

7192-8192. Occupational Health and Safety. (3). Occupational health and safety theory and practice related to overall improvement of community health and safety.

7522. Patient Education. (3). In-depth study of patient education programs including roles and responsibilities of patient educators, principles of patient teaching, and the planning and evaluation of health care services.

7702-8702. Sociological Health Issues. (3). Examination of current health issues and problems with emphasis on roles of parents, teachers, administrators and community personnel.

7712-8712. Epidemiology. (3). Introduction to selected diseases of special concern in public health practice with emphasis on epidemiologic models and methods. PREREQUISITE: Introductory statistics, HLTH 7802, EDRS 7521, or permission of instructor.

7722. Methods and Techniques for Community Health Planning. (3). Analysis and evaluation of methods for planning community health education programs; planning models, the effective use of health and medical care resources, and techniques for determining health needs.

7802-8802. Construction and Analysis of Health Instruments. (3). The principles of construction, selection, and analysis of cognitive and affective instruments in the field of health education will be presented.

7902-11-8902-11. Special Topics in Health. (1-3). Current topics in health. May be repeated with a change

in topic. See departmental listing in *Schedule of Classes* for topic.

†**7996. Thesis. (1-6).** Application for writing a thesis must be filled out on an approved form after consultation with the major professor and filed with the Dean of Graduate Studies.

M745 SAFETY EDUCATION (SAFE)

6207-16. Workshop in Driver and Traffic Safety Education. (1-3). For both in-service and prospective teachers of grades 7-12 in the improvement of the teaching-learning process as applied to driver and traffic safety education. Attention is given to common elements of teaching methodology, utilization of appropriate driver and traffic safety education materials and resources and evaluative criteria. Students who have previously earned credit in SCED 4707-6707 Workshop in Driver and Traffic Safety Education may not repeat SAFE 6207 and earn credit.

6335. Driver and Traffic Safety Education I. (3). Basic knowledge and skills to deal with the problems of vehicular traffic. Defensive driving and driver improvement techniques will be stressed. Students desiring teacher certification must enroll concurrently in SAFE 6336 for one semester hour in order to complete laboratory requirements.

6336. Driver and Traffic Safety Education — Lab I. (1). Laboratory experiences dealing with classroom and in-car instruction. Required for all students desiring certification in driver education. To be taken concurrently with SAFE 6335. Two hours each week to be arranged individually.

6337. Driver and Traffic Safety Education II. (3). Advanced driver and traffic safety educational activities. Included is a study of current research in accident causation and prevention. Students desiring teacher certification must enroll concurrently in SAFE 6338 for one semester hour in order to complete laboratory requirements. Students who have previously earned credit in SCED 6337 may not repeat SAFE 6337 and earn credit.

6338. Driver and Traffic Safety Education — Lab II. (1). Laboratory experiences dealing with classroom, in-car multi-vehicle range and simulation instruction. To be taken concurrently with SAFE 6337. Two hours each week to be arranged individually.

6902-11. Special Topics in Safety Education. (1-3). Current topics in Safety Education. May be repeated with change in topic. See *Schedule of Classes* for topic.

7902-11-8902-11. Special Topics in Safety Education. (1-3). Current topics in Safety Education. May be repeated with a change in topic. See *Schedule of Classes* for topic.

M750 PHYSICAL EDUCATION (PHED)

6102-11. Workshops in Physical Education, Sport and Dance. (1-6). Selected phases of physical education, sport and dance through group study. In-depth study in area of interest and need for physical education teachers, coaches and administrators. May be repeated for credit when the topic varies.

6401. Electrophysiology and EKG Interpretation. (3). An introduction to the electrophysiology of muscle cells with an emphasis on cardiac cells. Mechanics and interpretation of EKG are covered.

6403. Kinesiology. (3). (Same as BIOM 6403). Analysis of selected anatomic systems as related to purposeful movement of the human body. PREREQUISITES: BIOL 1731 and 1732 or consent of instructor.

6613. Management and Care of Athletic Facilities and Equipment. (3). Modern techniques and procedures used in management of interscholastic and intercollegiate athletic facilities. Additional emphasis on selection and care of appropriate functional athletic equipment.

6902-11. Special Topics in Physical Education. (1-3). Current topics in Physical Education. May be repeated with change in topic. See *Schedule of Classes* for topic.

7103. Foundations of Physical Education. (3). Interpretation of the objectives of physical education as related to scientific facts contained within the biological, psychological, and sociological fields of study.

7113. Curriculum Construction in Physical Education. (3). Entire program of instruction in physical education including methods of instruction, standards of achievement, evaluation of results, and the preparation of a course of study.

7123. Mechanical Analysis of Motor Skills. (3). Experiences which will enhance the understanding and practical application of the laws of mechanical physics to the fundamental techniques utilized in the performance of physical activities.

7133-8133. Current Readings in Physical Education. (3). Directed readings in the area of physical education. Materials selected to strengthen areas of study.

7143-8143. Seminar in Physical Education. (1-3). Special study of selected current problems in physical education and sport. May be repeated for maximum of 9 credits.

7153-8153. Special Problems in Physical Education. (1-3). Independent study and/or research project on selected physical education and/or sport problems and issues. PREREQUISITE: Consent of instructor.

7163. Motor Learning. (3). Investigation of research as it relates specifically to the acquisition of motor skills. Emphasis placed upon such variables affecting skill acquisition as: motivation; distribution, length and methods of practice; feedback mechanisms; and the retention and transfer of skills.

7173-8173. Sport in Contemporary Society. (3). Nature and function of sport and related phenomena in contemporary American settings within a socio-cultural context. Sport-related issues pertaining to racial minorities, politics, status, consumerism, subgroups, aggression and financial matters are examined.

7183-8183. Physical Fitness and Health. (3). Focuses on research pertaining to the relationship of physical exercise to the cardio-vascular system, cardiovascular disease, longevity, weight control and relaxation. Physical work capacity, percent body fat, flexibility and other factors are measured.

7184. Modern Concepts of Physical Conditioning. (3). Theoretical and practical approaches to study of fitness; components of fitness and training programs. Laboratory experiences will supplement theory.

7185. Preventive and Therapeutic Exercise Programs for the Older Adult. (3). Impact of fitness activities on lives of older adults. Focus on physiological and psychological benefits associated with leading an active life and the effects of these benefits on quality and quantity of life.

7201-8201. Advanced Physiology of Exercise. (3). Physiological bases of human physical performance and physical fitness and acute and long-term responses of the body to various modes, frequencies, intensities, and duration of exercise. PREREQUISITE: Undergraduate course in exercise physiology or permission of instructor.

7301. Internship in Fitness/Wellness. (3-6). Laboratory experience focusing on development of knowledge, skills and techniques needed to function as physical fitness specialist in public or private settings.

7403. Measurement and Evaluation in Physical Education. (3). Includes selection, application and evaluation of certain tests appropriate to physical education.

7542. Advanced Kinesiology. (3). (Same as BIOM 7542). Study of body motions as related to biomedical engineering. Mathematical analysis of body motions using computer analysis, experimental techniques, and combinations. Two lectures and three hours of laboratory per week. PREREQUISITE: PHED 6403 or permission of instructor.

7603. The Administration of Athletics. (3). Representative athletic administrative procedures for colleges, public school systems, and municipal athletic leagues; fiscal procedures and business management.

7903-13-8903-13. Special Topics in Physical Education and Sport. (1-3). Current topics in physical education and sport. May be repeated with a change in topic. See *Schedule of Classes* for topic.

†**7996. Thesis. (1-6).** Application for writing a thesis must be filled out on an approved form after consultation with the major professor and filed with the Dean of Graduate Studies.

M760 RECREATION (RECR)

6001. Park Visitor Management I: Introduction. (2). Evolution of park visitor management theory, marketing, and programming to today's park and recreation areas, and use of information as management tool.

6002. Park Visitor Management II: Interpretive Services. (2). Use of interpretive programs as means of enhancing visitor enjoyment and education while aiding park managers in mission to protect park resources.

6003. Park Visitor Management III: Backcountry Techniques. (2). Theories and techniques of backcountry visitors outdoor recreation skills, development of backcountry management plans, and current trends in recreation area management.

6004. Park Visitor Management IV: Hazards, Search and Rescue. (2). Theories and techniques of hazard management, legal and ethical implications, visitor search and rescue.

6405. Organization and Administration of Recreation. (3). Understanding community organization, its philosophy, foundation and principles. Understanding selected administrative practices that relate to successful recreational organization and administration.

6705-15. Workshop in Recreation and Parks. (1-6). Selected phases of recreation, parks or leisure studies. In-depth study of areas of interest and need for persons in recreation and parks or related fields. May be repeated when topic varies.

6905-15. Special Topics in Recreation, Parks and Leisure Studies. (1-3). Current topics in recreation, parks and leisure studies. May be repeated with change in topic. See *Schedule of Classes* for topic.

7135-8135. Current Readings in Recreation. (3). Directed readings in the area of recreation, parks or leisure studies. Materials selected to strengthen areas of study.

7145-8145. Seminar in Recreation. (1-3). Selected current problems in recreation, parks or leisure studies. May be repeated when the topic varies.

7155-8155. Special Problems in Recreation. (1-3). Independent study and/or research on selected recreation, park or leisure studies problems and issues. PREREQUISITE: Consent of instructor.

7201. Conceptual Issues in Therapeutic Recreation. (3). Development of therapeutic recreation services in special settings, current practices, and analysis of future concerns for special populations.

7202. Principles and Procedures of Therapeutic Recreation. (3). Analysis of administrative practice and program development approaches; competency development for clinical and community based therapeutic recreation programs. PREREQUISITE: RECR 7201-8201 or permission of instructor.

7203. Therapeutic Recreation for the Aging. (3). Planning, scheduling, and implementation of therapeutic recreation programs and services for the aging population; emphasis on physical, psychological, intellectual, and sociological qualities affecting recreation programs and services. PREREQUISITE: RECR 7201-8201 or permission of instructor.

7305-8305. Philosophy of Leisure and Recreation. (3). A study of the philosophical foundations for recreation and parks in a dynamic society and in an age of leisure.

7405. Program Planning in Recreation. (3). Study of needs, interests, and problems of people with specific reference to age. Study of social forces affecting recreational planning and programming. Development of an understanding of the principles of program planning, development, and management, including organization, direction, and supervision.

7415-8415. Recreation in Special Settings. (2). Course content will focus on varied current problem settings (i.e., urban, inner city, rural and industrial recreation).

†7605. Supervised Practicum in Recreation. (3-9). Field experiences providing an opportunity for practical application of classroom theory. A range between 140 and 420 clock hours in professional field work in selected recreational settings according to student's particular area of emphasis. No more than six semester hours may apply to a 30 or 33 semester hour degree program. If nine hours are earned, the student must present not less than 36 hours for a non-thesis degree.

7800. Computer Applications for Recreation and Park Planning and Management. (3). Evolution, current application, and future potential of computers for managing recreation programs and park resources. PREREQUISITE: RECR 7405 or Permission of Instructor.

7990. Applied Research in Leisure and Recreation. (3). Emphasis on application of appropriate research methodology to the process and phases of leisure research; emphasis on defining research problems, selecting appropriate research designs, and gathering and interpreting data in recreation, parks and leisure studies. PREREQUISITE: EDRS 7521.

7905-15-8905-15. Special Topics in Recreation, Parks and Leisure Studies. (1-3). Current topics in recreation, parks or leisure studies. May be repeated with a change in topic. See *Schedule of Classes* for topic.

†7996. Thesis. (1-6). Application for writing a thesis must be filled out on an approved form after consultation with the major professor and filed with the Dean of Graduate Studies.

† Grades of S, U, or IP will be given.

HIGHER EDUCATION

PATRICIA H. MURRELL, Ed.D., *Director,*
Center for the Study of Higher Education

Room 406

The College of Education Building

I. The Higher Education major is designed for those who plan careers in two-year and four-year colleges and universities and agencies concerned with post-secondary education. The program is designed to equip students with the conceptual and practical skills needed in administration, teaching, student services and institutional effectiveness. Coursework and active engagement in research activities contribute directly to an understanding of the role of leadership and organizational structure, the context of higher education, adult development, teaching and learning, and inquiry in higher education settings.

II. The College of Education offers a graduate program leading to the Doctor of Education degree with a major in Higher Education. The Higher Education major is a college major cooperatively supported through existing departments and the Center for the Study of Higher Education. It is administered through the Office of the Dean by the Center for the Study of Higher Education, and degrees are awarded for this major through the College rather than through a department.

III. Ed.D. Degree Program**A. Program Admission**

Meet the general admission requirements of the Graduate School and of the College of Education:

B. Program Requirements

1. A minimum total of 99 semester hours of graduate credit beyond the bachelor's degree, with a minimum of 21 hours selected from courses numbered 8000 and above.

2. A minimum of 48 hours in the major, including:

a. Higher Education Core (24 hours): CIED 8200, 8201; EDAS 8192, 8320; EDFD 8002, 8029; COUN 8613, 8622

b. Dissertation (12 hours)

c. A minimum of 12 hours of electives supportive of the major.

3. A minimum of 6 hours in the cultural/psychological foundations of education

4. Research (9 hours): EDRS 7521, 8541, 8522 or 8542

5. A minimum of 18 hours of supportive collateral work taken outside of the major.

6. Completion of the university and college residency requirements

7. Two years of prior teaching and/or administrative experience, or equally appropriate experience

HOME ECONOMICS

DIXIE R. CRASE, Ph.D., *Chair*
and Coordinator of Graduate Studies
Room 404 Manning Hall

I. The purpose of the Master of Science with a major in Home Economics is to provide an advanced educational option for both school personnel and other individuals preparing for, or pursuing, careers based on home economic subject matter. The Department also offers the Master of Science degree with a major in Clinical Nutrition.

Concentrations are available in Home Economics Education, Fashion Merchandising, Housing and Home Furnishings, Nutrition and Marketing Education.

II. M. S. Degree Program - Major in Home Economics**A. Program Prerequisites**

1. Completion of an undergraduate major in one of the several specific areas of home economics, or a closely allied field such as marketing, art or science.

2. Meet University requirements for admission to Graduate School.

3. Completion of academic deficiencies in course work if, after faculty evaluation of transcripts, it is deemed necessary.

4. In Nutrition Concentration, student must be within 9 hours of completing ADA Plan IV requirements.

B. Program Requirements

1. A total of 36 semester hours is required of all students, six hours of which may be thesis hours.

(a) A minimum of 18-24 semester hours in the major must be selected in conjunction with, and approved by, the adviser, to fulfill the professional needs and expectations of the student; included in this major is a six semester hour departmental core consisting of the following:

HMEC 7100 Implications of Research in Home Economics (3)

An appropriate internship or practicum (3)

(b) A minimum of 9-15 semester hours of course work which will be supportive to the academic concentration of the student must be taken outside the Department of Home Economics.

EDRS 7521 Introduction to Educational Research (3)

(c) In Nutrition Concentration, completion of ADA Plan IV requirements is required for graduation.

2. Successful completion of a written comprehensive examination for students not taking the thesis option; successful completion of oral comprehensive examination for those electing thesis option.

III. M.S. Degree Program - Major in Clinical Nutrition**A. Program Prerequisites**

1. Completion of an undergraduate major in foods and/or nutrition to include ADA Plan IV or V requirements.

2. Meets University requirements for admission to the Graduate School to include a grade point average equivalent to a B (3.0 on a 4.0 scale) and an acceptable score on the Graduate Record Examination (Minimum 900) or Miller's Analogy Test (Minimum 30).

3. Demonstration of interest in the field of clinical nutrition by letter, documentation of work experiences, and evidence of above average performance documented by letters of reference.

4. Enrollment limited to 8-12 students per year.

B. Program Requirements

1. Coursework must be taken in sequence.

2. A total of 48 hours is required for completion of this major to include 6 hours of thesis, 6 hours of research, cellular nutrition I and II, nutrition and human development I and II, and clinical practice I, II, III, and IV. Other required courses are advanced therapeutic nutrition, advanced food systems management, and implications of research in clinical nutrition. Elective courses necessary for completion of academic requirements can be from the department or from other departments. Statistics is required for all students and

must be taken as an elective, if it was not taken in the undergraduate program.

3. Successful completion of a written comprehensive exam.
4. Oral defense of thesis.

M770 HOME ECONOMICS (HMEC)

6101. Nursery School Curriculum. (3). Application of child development principles to program planning; infancy through four years of age.

6204. Furnishings Problems and Presentations. (3). Problems in planning, coordinating and purchasing of home furnishings. PREREQUISITE: HMEC 2004, 4304.

6205. Behavioral Science Aspects of Clothing. (3). Interdisciplinary study of clothing and appearance; concepts, methodologies and applications of behavioral science to clothing.

6300. Family Resource Management. (3). Systems approach to managing personal and family resources throughout the lifespan.

6304. Trends in Housing and Home Furnishings. (3). Major trends and influences on contemporary residential furnishings as these affect home furnishings merchandising. PREREQUISITE: HMEC 2104.

6305. Trade Construction of Clothing. (3). Concerned with clothing construction based upon sound practical adapted trade methods and techniques, in logical sequence, in the construction of most elementary garments. PREREQUISITE: HMEC 2205.

6383. Materials and Methods in Secondary Home Economics. (3). Methods course in high school subjects including: tools of instruction, organization of courses, and teaching procedures and practices.

6393. Occupational Education in Home Economics. (3). History, philosophy, and organization of Home Economics Occupational Education; emphasis on instructional strategies and evaluation through classroom and on-site participation.

6405. Textiles. (3). Selection, use and care of textiles related to properties of fibers, yarn structures, fabric construction, and finishes. Morphology and chemistry of fibers, finishes, dyes, fabric maintenance and procedure involved in fiber, yarn, and fabric identification.

6502. Quantity Cookery and Purchasing. (3). Principles of procuring, storing, producing and serving foods in volume. Planned work experiences in selected quantity food operations. PREREQUISITES: HMEC 3302, 3602.

6504. Selection and Use of Textiles for Interiors. (3). Guides in the selection, use, and care of textiles for household interiors.

6505. Tailoring. (3). Selection and construction of tailored wool garments, using various tailoring techniques. PREREQUISITE: By permission of instructor.

6602. Community Nutrition. (3). Nutritional problems and practices of various ethnic, age and socio-economic groups; study of the community and agencies concerned with meeting these needs. PREREQUISITE: HMEC 2202 or permission of instructor.

†6702. Nutrition Practicum. (3). Supervised field experience in the area of food service administration and/or community nutrition.

001. Food Production Practicum. (3). PREREQUISITES: HMEC 3206, 4502.

002. Catering Practicum. (3). PREREQUISITES: HMEC 3602, 4502.

003. Community Nutrition Practicum. (3). PREREQUISITE: HMEC 4602.

6802. Experimental Foods. (3). Principles underlying the experimental approach to the study of chemistry, composition, structure and properties of food. Demonstration of effects of various ingredients in commonly prepared foods. *One lecture, four laboratory hours per week.* PREREQUISITES: HMEC 2102, CHEM 1111, 3311.

6900. Home Economics Study Tour. (1-3). On-the-scene knowledge about specific academic areas of specialization within Home Economics. PREREQUISITE: Permission of instructor. May be repeated. Only 6 hours applicable to degree.

001. Child Development and Family Relations. (1-3).

002. Foods and Nutrition. (1-3).

003. Family Economics and Consumer Education. (1-3).

004. Housing and Home Furnishings. (1-3).

005. Clothing and Textiles. (1-3).

006. Fashion Merchandising. (1-3).

6920-29. Special Topics in Home Economics. (1-3). Lectures and conferences on current topics in Home Economics. May be repeated with change in topic. See *Schedule of Classes* for topic.

7100. Implications of Research in Home Economics. (3). Focus on current research and specific research techniques in the field of Home Economics. PREREQUISITE: EDRS 7521.

7101. Master's Seminar in Home Economics. (1-3). Seminar designed to offer continuing personal/professional development to the Home Economist. To be taken early in the master's program during two consecutive semesters for 1 and 2 credits respectively.

7201. Marriage and Family Relations. (3). Consideration of interpersonal relations in the family, for advanced study of the growing body of scientific knowledge concerning marriage, the experiences which precede it and the adjustments and challenges growing out of it. Special attention given to husband-wife, parent-child and sibling relationships and to stages in the family life cycle.

7202. Current Issues in Foods and Nutrition. (3). Review and analysis of current research, trends and issues in area of foods and nutrition. PREREQUISITES: HMEC 4402, 4802, and CHEM 4512.

7212. Applied Nutrition for Health. (3). Basic principles of nutrition and their application for health and fitness. Not applicable to nutrition concentration.

7222. Advanced Therapeutic Nutrition. (3). Physiological and biochemical bases of nutrition related diseases and principles of treatment and prevention. PREREQUISITES: HMEC 4402, BIOL 1632, CHEM 4512.

7300. Independent Study in Home Economics. (1-3). Opportunity for creative, directed, independent study in a specific area of Home Economics. Available to provide breadth and/or depth to the student's program of study. PREREQUISITE: Consent of instructor.

7301. Seminar in Child Development. (3). Review, interpretation and evaluation of current literature and research in defined areas of child development; implications of research findings for teaching, counseling, and/or research in child development.

7302. Internship in Nutrition. (3). Supervised field experience in a selected area of nutrition. PREREQUISITE: Permission of department chair. (S, U, IP).

001. Internship in Nutrition in Mental Retardation and Developmental Disorders. (3).

002. Internship in Administrative Dietetics. (3).

003. Internship in Public Health and Community Nutrition. (3).

004. Internship in Clinical Dietetics. (3).

†7311-15. Internship in Occupational Home Economics. (3). Materials, methods, and coordinating of work experiences for occupational Home Economics including supervised on-the-job experience in a selected occupational area for the teacher. PREREQUISITES: Vocational Certification and teaching experience.

†7311. Child Care Services. (3). PREREQUISITES: HMEC 2101, 6101, 7393, CIED 3212, 3412, or their equivalents.

†7312. Food Service. (3). PREREQUISITES: HMEC 2202, 3302, 4202, 6502, 7393, or their equivalents.

†7314. Parenthood Education. (3).

†7315. Clothing Services. (3). PREREQUISITES: HMEC 2205, 6305, 6505, 7393, or their equivalents.

7383. Instructional Development in Home Economics. (3). Current information, based on research and scholarly investigation, in specific areas of study encompassed in the secondary Home Economics curriculum; discussion and demonstration of effective teaching and evaluating techniques.

7393. Seminar in Vocational Home Economics. (1-3). Consideration of the philosophy, curriculum, operation, and evaluation of Occupational Home Economics programs, with scope and direction based on the 1963 and 1968 Federal Vocational Education Legislative Acts.

7405. Clothing Behavior Patterns. (3). Concerned with the application of basic concepts from cultural

anthropology, sociology, and psychology to the study of clothing through surveys of pertinent research literature, selected references and periodicals.

7412. Cellular Nutrition I. (3). Generation, storage and use of energy; metabolism of carbohydrate, protein, fat, and other macro and micronutrients; control of metabolic processes in normal, anabolic, and catabolic conditions. PREREQUISITE: Student must meet ADA Plan IV or V requirements or permission of instructor.

7420-29. Workshops in Home Economics. (3). Designed to respond to needs and interests of student in Home Economics. Specific titles of workshops vary.

7422. Cellular Nutrition II. (3). Biomedical and behavioral sciences theories providing the bases for dietary recommendations in normal development, disease and behavioral disorders. Human needs for fluid, energy, fiber, macro and micronutrients; methods of nutritional assessment. PREREQUISITE: Student must meet ADA Plan IV or V requirements or permission of instructor.

7432. Nutrition and Human Development I. (3). Food, nutrition and human behavior in the life span development of individuals and populations; economic and phenomenological bases for intervention to develop food habits and modify diet in the prevention and treatment of disease and disability. Methods of dietary assessment. PREREQUISITE: Student must meet Plan IV or V ADA requirements or permission of instructor.

7442. Nutrition and Human Development II. (3). Models and approaches used in health and nutrition intervention programs; leadership in organizational technology; and current issues in developing public policy in food, nutrition and health. PREREQUISITE: Student must meet Plan IV or V ADA requirements or permission of instructor.

†7452. Clinical Practice I. (3). Directed clinical practice in health care settings serving infants, children, and women. Emphasis on nutrition in normal growth and development; women's health during reproduction, lactation, and post menopausal years; and social support in achieving health and human development. PREREQUISITE: Students must meet Plan IV or V ADA requirements or permission of instructor. COREQUISITE: HMEC 7432.

†7462. Clinical Practice II. (3). Directed clinical practice in health care settings serving adults and elderly persons. Emphasis on nutrition in wellness and maintenance of health in aging as well as prevention and treatment of disease and disability; and social support in achieving health and human development. COREQUISITE: HMEC 7222.

†7472. Clinical Practice III. (3). Directed clinical experience in the administration of nutrition services including food service systems, clinical and community nutrition service delivery systems, clinical research programs, and health promotion programs. COREQUISITE: HMEC 7501.

†7482. Clinical Practice IV. (3). Individualized clinical experience designed to enhance self-direction in learning and develop entry-level competence in areas of needs and interests in clinical practice and administration of nutrition services, teaching, and research. COREQUISITE: HMEC 7100.

7500-7509. Special Topics in Home Economics. (1-3). Current topics in areas of home economics. May be repeated with change in content. See *Schedule of Classes* for topic.

7520. Advanced Food Systems Management. (3). Detailed overview of current food service management systems with particular emphasis on hospital systems. PREREQUISITE: HMEC 6502.

7704. Seminar in Housing. (3). Research oriented analysis of history, current trends, developments and problems concerned with socio-economic aspects of American housing.

7804. Seminar in Home Furnishings. (3). Research oriented analysis of the history, current trends, problems and developments concerned with the socio-economic aspects of home furnishings.

†7904. Practicum: Housing/Home Furnishing. (1-6). Provides an individualized work experience in either an approved Home Furnishings Merchandising business establishment or in Housing related government or organization programs.

†7996. Thesis. (1-6).

†Grades of S, U, or IP will be given.

MARKETING EDUCATION

The Department of Home Economics offers graduate study leading to a Master of Science degree with a concentration in Marketing Education.

M773 MARKETING EDUCATION (MKED)

6010. Cooperative Occupational Education (3). Study of occupational education programs which use work experience coordinated with related in-school instruction to provide career preparation in marketing, office, industry, home economics, health and other fields of employment.

6611. Principles and Philosophy of Vocational Education (3). History, philosophy, principles and objectives of vocational education; curriculum problems; contribution of vocational education to general education; trends and research problems in vocational education.

6630. Materials and Methods in Marketing Education (3). Instructional materials and techniques used in high school and post high school marketing education classes. (Fall semester only.)

6641. Techniques and Coordination of Cooperative Occupational Education (3). Selecting training agencies, developing job analyses; selecting and briefing the training supervisor; selecting and working with advisory committees; utilizing other community and resources.

6680. Development and Supervision of Vocational Student Organizations (3). Aims and objectives of vocational student organizations and their value in occupational preparation; their development, curricular integration, operation and evaluation.

6690-99. Workshops in Marketing Education (1-9). Group study of selected phases of the marketing education program; designed to assist both in-service prospective marketing and distributive education teacher-coordinators in improvement of the teaching-learning processes contained in three phases of program operation: classroom instruction, on-the-job training and student organization advisement. See *Schedule of Classes* for topic. May be repeated; however, credit applicable to a degree is limited.

6700. Marketing Education Study Tour (1-3). An opportunity to gain on-the-scene knowledge about specific areas of instruction within marketing education. May be repeated; however, the student should consult with major adviser to determine the maximum credit which may be applied to a degree program. PREREQUISITE: Permission of instructor.

7620. Administration and Supervision of Vocational Education (3). For vocational teacher or public school administrator desiring to accept responsibility for supervising vocational education programs at local, area or state levels. Includes program design; curriculum construction; classroom supervision; physical layout; administration of supplies, textbooks and equipment; state and federal legislation; accounting and reporting.

7630. Improvement of Instruction in Marketing, Merchandising, and Management (3). A critical evaluation of content, visual aids, methods and testing in marketing, merchandising, and management courses taught in high school and post-secondary marketing education programs.

7650. Problems in Marketing Education (1-3). Individual investigation and reports of specific problems.

7660. Organizing and Teaching Adult Marketing Education (3). The techniques of working with trade associations, employment services, Manpower programs, itinerant instructors; unique features of planning, organizing, promoting, teaching, and evaluating balanced continuing education programs for marketing occupations.

7982-92. Special Topics in Marketing Education (1-3). Lectures and conferences covering selected areas of current interest (including program operation, student selection and placement, curriculum development, methodology, coordination, advisory committees, reporting, follow-up procedures, student organizations, program trends and specialization). See *Schedule of Classes* for topic. May be repeated; however, credit applicable to a degree is limited. PREREQUISITE: Permission of instructor.

7993. Occupational Experience Practicum (1-3). Practical experience in occupational specialty area for certification and/or occupational updating; employment in occupational specialty area; comprehensive research report. PREREQUISITES: Permission of instructor.

†7996. Thesis. (1-6).

†Grades of S, U, or IP will be given.

SPECIAL EDUCATION

WILSON L. DIETRICH, Ed.D., *Chair*

H. LYNDALE RICH, Ph.D., *Coordinator of Graduate Studies*

Room 100, Special Education Building

I. The Department of Special Education offers the Master of Education degree with a major in Special Education and concentrations in Educationally Handicapping Conditions, Pre-School Education of Exceptional Children, and Multihandicapped; the Master of Science degree with a major in Special Education. Degree programs leading to the Education Specialist and Doctor of Education are also available. All programs designed for certification are approved by the National Council for the Accreditation of Teacher Education (NCATE).

II. M.Ed. Degree Program

A. Program Prerequisites

1. Teacher certification
2. Coursework and/or competency in teaching of reading and teaching of arithmetic

B. Program Requirements

1. SPED 7000 and 7001 or their equivalents.
2. EDRS 7521-Introduction to Educational Research.
3. Three hours in Educational Psychology, Cultural Foundations or CIED 7002.
4. Nine semester hours of approved supportive courses.
5. Minimum completion of 33 semester hours.
6. Written comprehensive examination.
7. Two years of teaching experience or its equivalent (to be determined by the Department Chair) before the degree is awarded.
8. Thesis option. Students must complete 30 hours of graduate credit and enroll in SPED 7996 for 3-6 hours.

III. M.S. Degree Program

A. *Program Prerequisites:* Admission to the Graduate School

B. Program Requirements

1. EDRS 7521 — Introduction to Educational Research
2. Major area — 18 to 21 semester hours
3. Collateral area — 12 to 15 semester hours

(a) Outside College of Education — 6 to 9 semester hours selected in consultation with academic adviser from supportive areas. Typical areas would be Psychology, Sociology, Criminal Justice, Management, and Audiology and Speech Pathology.

(b) Inside College of Education — 6 to 9 semester hours selected in consultation with academic adviser from supportive areas. Typical areas would be Administration and Supervision, Health, Guidance, Home Economics, and Recreation.

4. Written comprehensive examination.

5. Thesis option. Students must complete 33 hours of graduate credit and enroll in SPED 7996 for 3-6 hours.

IV. Ed.D. Degree Program

A. Program Prerequisites

1. Master's degree in related area.
2. Interview with department representatives of the Advanced Graduate Admissions Committee.
3. Completion of College of Education requirements for admission.

B. Program Requirements

1. A minimum of 48 semester hours in the major concentration.
2. 9 semester hours in Educational Psychology and/or Cultural Foundations.
3. A minimum of 18 semester hours outside the major department.
4. A research core of 9 semester hours (EDRS 7521, 8541, and 8522 or 8542).

Minimum total: 99 semester hours of graduate credit with a minimum of 21 hours selected from courses numbered 8000 or above.

Additional information pertaining to specific course requirements in the major and collateral areas may be secured from the Chair of the Department of Special Education.

M791 SPECIAL EDUCATION (SPED)

6801-10. Workshop in Special Education (1-9). For the professional in fields of special education. Intensive study of current methodologies, research, issues and trends in various areas of exceptionality and disability. See *Schedule of Classes* for topic. May be repeated when topic varies.

***7000. Psycho-Educational Problems of Exceptional Children and Adults (3).** Study of the relevant research dealing with the physical, mental, emotional, and social traits of all types of exceptional children and adults. Consideration of major current problems and practices in the development of various programs.

*Not required if equivalent courses taken at the undergraduate levels. (Substitutions must be made by the adviser).

7001-8001. Tests and Measurements for Exceptional Children and Adults (3). Emphasis on the development of an understanding of psychological and educational tests. Practice provided in test administration, with emphasis on diagnosis and problems encountered in children and adults who are auditorily, orthopedically, visually, mentally, emotionally, and speech handicapped. PREREQUISITE: SPED 7000.

7002-8002. Independent Study in Special Education (1-6). Opportunity for self-directive, independent study in special education. PREREQUISITE: Consent of instructor.

7010-8010. Seminar in Special Education (3-6). Continuing series of professional seminars designed to provide a forum for discussion of major problems, issues, trends and research concerning exceptional individuals. May be repeated for a maximum of 6 hours. PREREQUISITE: Consent of instructor.

7011-8011. Advanced Research Seminar in Special Education (3). Examination of current and classical research concerning special education. PREREQUISITE: Consent of instructor.

7025. Microcomputers in Special Education (3). Overview of microcomputers in special education. Emphasis placed on matching software programs with the unique learning needs of the handicapped child. Adaptive interfacing techniques for the physically and sensorially impaired also addressed.

†7041-8041. **Advanced Practicum in Special Education (3-6).** Supervised experience(s) in cooperation with university, local, state, and national educational personnel. May be repeated for a maximum of 6 hours. PREREQUISITE: Consent of instructor.

†7042-8042. **Advanced Internship in Special Education (3-6).** Practical experience in the methods, theories, and practices of various local, state and national agencies; institutions of higher education; state departments of education, state institutions, and private residential facilities for exceptional children. May be repeated for a total of 12 hours. PREREQUISITE: Consent of instructor.

7050. Teaching the Exceptional Learner (2). Overview of special education including characteristics and education of students with various exceptionalities. Emphasis on developing skills for effective teaching of exceptional student in regular classroom.

7060-69-8060-69. Special Topics in Special Education (1-3). Current topics in special education. May be repeated with a change in topic. See *Schedule of Classes* for topics.

7070-79. Workshop in Special Education (1-9). Opportunity for continuing growth to the professional

in fields of special education, such as intensive study in methodologies, research, issues and trends in areas of exceptionalities and disabilities. May be repeated when topic varies. See *Schedule of Classes* for topics.

7101-8101. Psycho-Social Aspects of Pre-School Education for Exceptional Children. (3). Research dealing with physical, mental, emotional and social traits of the exceptional child in pre-school years. PREREQUISITES: SPED 7000, 7001.

7121-8121. Development Assessment and Educational Programming of Pre-School Education for Exceptional Children. (3). Methods involved in educational developmental, assessment and educational planning for exceptional children in pre-school years. PREREQUISITE: SPED 7101.

†**7141-8141. Practicum in Pre-School Education for Exceptional Children. (3-6).** Observation and supervised experience in pre-school educational settings. PREREQUISITE: SPED 7121/8121.

7201-8201. Characteristics of the Educationally Handicapped. (3). Examination of etiology, psychological, social, physical and learning related performances of the educationally handicapped in developmental life periods. Emphasis upon interrelated nature of handicapping conditions; their prevention, treatment and remediation. PREREQUISITE: SPED 7000 or equivalent.

7203-8203. Psycho-Social and Educational Aspects of Emotionally Disturbed. (3). Characteristics of the emotionally disturbed and behaviorally disordered. Emphasis on social, psychological, and biological theories of causality, assessment and education with a variety of emotional and/or behavioral problems.

7211-8211. Methods I: Academic Instruction in Special Education. (3). Methods, remediation, and educational planning for handicapped learners. PREREQUISITE: SPED 7000 or equivalent and consent of instructor.

7221-8221. Methods II: Behavior Management in Special Education. (3). Methods of changing social behaviors of mildly handicapped learners in various educational settings. PREREQUISITE: SPED 7000 or equivalent and consent of instructor.

7222-8222. Methods and Techniques of Teaching Emotionally Disturbed. (3). Procedures for educating the emotionally disturbed. Emphasis on teaching behaviors, psycho-educational management of behavior, and affective teaching techniques. PREREQUISITE: SPED 7203 or consent of instructor.

7231-8231. Advanced Seminar in the Psycho-Social and Educational Aspects of Emotional Disturbance. (3). Theoretical and research bases for present practices in the education and treatment of emotional disturbance. PREREQUISITE: Consent of instructor.

†**7241. Supervised Practicum in Special Education. (3-9).** Observation and supervised field experience(s) with handicapped learners. PREREQUISITE: Consent of instructor.

7401-8401. Psycho-Social and Educational Aspects of Learning Disabilities. (3). Psychological, social and educational characteristics of individuals with learning disabilities. Theories and philosophies regarding the treatment, etiology and management considerations stressed.

7411-8411. Methods of Teaching Children with Learning Disabilities I. (3). Remedial approaches for children with learning disabilities. Emphasis on developmental sequence and educational practices.

7431-8431. Advanced Theories in the Classroom Management of Handicapped Learners. (3). Emphasis placed on practical application of behavior change technology with handicapped learners.

7501-8501. Psycho-Social and Educational Aspects of Mental Retardation. (3). Historical, philosophical and societal perceptions of the mentally handicapped. Emphasis on social, emotional, physical, and learning characteristics.

7511-8511. Clinical Problems in Teaching Mentally Retarded Children. (3). Emphasis is on diagnostic and pedagogical techniques used with retarded children at the pre-academic level. PREREQUISITES: SPED 7000, 7501.

7513-8513. Techniques of Teaching the Educable Mentally Retarded at the Secondary Level. (3). Work-study programs, functional academics, and academic remediation for adolescent and adult mentally retarded. PREREQUISITE: SPED 7501.

7601-8601. Introduction to Programs for the Severe/Profound Multi-Handicapped. (3). Overview of the characteristic and nature of severe/profound multi-handicapped. Investigation of programs, services and professions involved with this population.

7611-8611. Methods, Curriculum, and Materials. (3). Practical methods, curricula and materials for Severe/Profound Multi-Handicapped Learners. Instructing severely/profoundly multi-handicapped learners with emphasis on autism.

7801-8801. The Talented and Mentally Gifted. (3). (Same as CIED 7801-8801). Historical and societal perceptions and definitions of the talented and mentally gifted individuals; their social, emotional, and learning processes.

7802-8802. Special Populations of the Gifted. (3). (Same as CIED 7802-8802). Examination of the nature and needs of gifted and talented students whose performance is affected by some condition interfering with optimal growth. PREREQUISITE: SPED 7801.

7811-8811. Methods of Teaching the Gifted and Academically Talented. (3). (Same as CIED 7811-8811). Teaching strategies for fostering gifted behavior at preschool, elementary and secondary levels. Procedures and criteria for evaluating curriculum sequences and guides; alternative strategies for curriculum development; the writing and implementing of individualized educational plans. PREREQUISITE: SPED 7801-8801.

7822-8822. Advanced Methods of Teaching Gifted and Academically Talented. (3). (Same as CIED 7822-8822). Examination of provisions of services to gifted students in other than traditional enrichment programs. PREREQUISITES: SPED 7801, 7811.

†**7996. Thesis. (1-6).**

†**8000. Specialist Culminating Experience. (1-6).** Thesis, internship, field study, or special project under the direction of the student's committee. Serves as capstone experience in Educational Specialist Program.

†**9000. Doctoral Dissertation. (1-9).**

†*Grades of S, U, or IP will be given.*



THE HERFF COLLEGE OF ENGINEERING

GERALD JAKUBOWSKI, Ph.D.,
Interim Dean

CHARLES R. COZZENS, D.Ed.,
Interim Associate Dean and Director of Graduate Studies

GRADUATE ACADEMIC PROGRAMS

Department	Major	Concentrations	Degree Offered
Biomedical Engineering	Biomedical Engineering		Master of Science (M.S.)
Civil Engineering	Civil Engineering	(1) Environmental Engineering (2) Foundation Engineering (3) Structural Engineering (4) Transportation Engineering (5) Water Resources Engineering	Master of Science (M.S.)
Electrical Engineering	Electrical Engineering	(1) Automatic Control Systems (2) Communications and Propagation Systems (3) Electro-Optical Systems (4) Engineering Computer Systems	Master of Science (M.S.)
Engineering Technology	Technical Education	(1) Architectural (2) Construction (3) Electronics (4) Manufacturing	Master of Science (M.S.)
Mechanical Engineering	Mechanical Engineering	(1) Design and Manufacturing (2) Energy Systems (3) Mechanical Systems (4) Power Systems	Master of Science (M.S.)
Interdepartmental	Industrial and Systems Engineering		Master of Science (M.S.)
	Engineering	(1) Biomedical Engineering (2) Civil Engineering (3) Electrical Engineering (4) Mechanical Engineering	Doctor of Philosophy (Ph.D.)
Graduate School	Individual Studies	(by contract)	Master of Arts (M.A.) Master of Science (M.S.)

The Herff College of Engineering offers graduate programs at the master's and doctoral levels through its departments of Biomedical, Civil, Electrical and Mechanical Engineering. In addition, a master's program in technical education is offered through the Department of Engineering Technology and an interdisciplinary master's program is offered in industrial and systems engineering. Students enrolled in the college at the master's level work toward the Master of Science (M.S.) degree. The doctoral program of the college leads to the degree of Doctor of Philosophy (Ph.D.) after successful completion of study and research in one of the following four areas: biomedical, civil, electrical, or mechanical engineering. Candidates for all degrees must follow a curriculum plan that has been approved at the departmental level and by the Director of Graduate Studies of the College.

MASTER OF SCIENCE DEGREE PROGRAMS

The purpose of the master's degree programs is to provide opportunity for advanced study in various areas of engineering of current importance. Flexibility is provided in that students have the option of a thesis or non-thesis program

Master's Program Admission Requirements

Admission to the master's program is granted on a common set of criteria that is based upon the applicant's attainment of an appropriate bachelor's degree, the score earned on the Graduate Record Examination (GRE), and the undergraduate grade point average (GPA). The GPA used is either the cumulative or the last 60 semester hours of applicable courses earned toward a degree.

In addition to meeting the University minimum admission requirements, applicants must meet the following criteria established by this College.

The applicant must have:

1. appropriate bachelor's degree as determined by the admitting department.
2. an undergraduate GPA of at least 2.5.
3. a score of 1500 when the product of his/her undergraduate GPA and 200 is added to the sum of the verbal and quantitative portions of the GRE. $[GRE (200) + GRE] \geq 1500$.

An applicant who lacks an appropriate bachelor's degree may be required to complete undergraduate deficiency courses. If the number of deficiency courses is large, the applicant may be required to complete an undergraduate degree in engineering before seeking admission to the graduate program.

In addition to the above requirements, applicants whose native language is other than English must score at least 550 on the Test of English as a Foreign Language (TOEFL).

Retention Requirements

Refer to the individual program descriptions of each department.

Graduation Requirements

Refer to the individual program descriptions of each department.

DOCTOR OF PHILOSOPHY DEGREE PROGRAM

The Herff College of Engineering offers a program leading to the degree of Doctor of Philosophy (Ph.D.) with a major in Engineering and concentrations in biomedical, civil, electrical, or mechanical engineering.

Ph.D. Admission Requirements

Admission to the doctoral program is granted on a common set of criteria that is based upon the applicant's educational background, Graduate Record Examination (GRE) score, grade point average (GPA), and letters of recommendation. The GPA used is either the cumulative or the last 60 semester hours of applicable

courses earned toward a degree. Admission criteria also depends upon whether the applicant received a degree from an institution that is accredited at the undergraduate level by the Accrediting Board for Engineering and Technology (ABET).

In most cases, applicants will be considered for admission after completion of a master's degree. However, in certain cases, admission to the doctoral program may be granted after the attainment of a bachelor's degree. The following criteria will be applied according to the applicant's educational background as categorized below:

A. Master's Degree

1. *Master's Degree from a School with an ABET Accredited Undergraduate Program:* An applicant who has a master's degree from an engineering program accredited at the undergraduate level by ABET will be considered for admission provided the composite score on the GRE Verbal and Quantitative sections totals at least 1000 and provided the product of the graduate GPA and the GRE score equals at least 3500, i.e., $[GPA \times GRE \geq 3500]$.

2. *Master's Degree from a School with a non-ABET Accredited Undergraduate Program or Bachelor's Degree field other than Engineering:* Applicants in this category will be considered for admission provided the composite score on the GRE Verbal and Quantitative sections totals at least 1050 and provided the product of the graduate GPA and the GRE score equals at least 3500, i.e., $[GPA \times GRE \geq 3500]$.

B. Bachelor's Degree

1. *Bachelor's Degree from an ABET Accredited Program:* An applicant who has a bachelor's degree from an engineering program accredited at the undergraduate level by ABET will be considered for admission provided the composite score on the GRE Verbal and Quantitative sections totals at least 1050 and provided the product of the undergraduate (GPA) and the (GRE) score equals at least 3600, i.e., $[GPA \times GRE \geq 3600]$.

2. *Bachelor's Degree from a non-ABET Accredited program or Master's Degree field other than Engineering:* Applicants in this category will be considered for admission provided he/she has an undergraduate GPA of at least 3.75 and a GRE score of 1150 or higher.

Grade point averages above are based on a 4.00 grading system where A = 4.00. Students presenting transcripts using a different system will be held to similar standards.

In addition to the above requirements, all applicants must submit an application for admission to Memphis State University along with three letters of recommendation from previous instructors attesting to the applicant's academic ability and potential for success in a doctoral program. Applicants whose native language is other than English must score at least 550 on the Test of English as a Foreign Language (TOEFL).

The above represent the minimal acceptable admission requirements. Depending on the applicant's educational background, the advisory committee may require additional coursework to prepare the student for doctoral studies.

In unusual circumstances where the above admission requirements cannot be met, an applicant may seek exceptions by contacting the Director of Graduate Studies for the college.

Retention Requirements

A student will be retained continuously in the program until completion of the degree providing the following conditions are met:

All students will be required to maintain a grade point average (GPA) of at least 3.00. Should the student's GPA fall below that mark, a period of one semester or one full summer term will be allowed to correct the deficiency. Failure to regain the minimum 3.00 is considered sufficient reason for being dropped from the program. This period may, at the discretion of the student's advisory committee, be extended one additional semester or full summer term. If the GPA at the end of this extension is still below 3.00, the student will be dismissed from the program.

Accumulation of more than 7 semester hours of graduate coursework with a grade of C or lower will result in dismissal from the program.

All students are required to complete a comprehensive examination with at least a minimum passing score on the written portion and a satisfactory performance on the oral portion of the exam. A second and final attempt to pass this examination may be granted by the student's advisory committee; failure will result in mandatory dismissal from the program.

Graduation Requirements

General Requirements: Each student must earn at least 90 semester hours beyond the bachelor's degree or 57 beyond the master's degree. Credit for the dissertation will range from 18 to 30 semester hours with the decision concerning the credit allowance being made by the student's advisory committee. Early in each student's program of study, a committee composed of graduate faculty in the college will be appointed by the Director of Graduate Studies upon recommendation of the departmental chair.

At least 66 of the 90 semester hours required, including dissertation and research credit, must be in engineering and at least 57 in the student's concentration. No more than 15 semester hours credit of 6000 level courses will count toward the 90-hour Ph.D. degree.

Residency Requirements: A minimum of 24 semester hours must be earned while the student is in continuous residence. This may be done in two regular consecutive semesters. If the student is retained as a graduate assistant, the residency requirement may be met over a single continuous twelve-month period provided the student completes eighteen semester hours in two successive regular semesters. A student is not eligible to complete this residency requirement until a minimum of thirty semester hours of graduate study have been successfully completed.

Language Requirements: Students will be required to demonstrate foreign language skills sufficient to understand the

major body of pertinent literature in the chosen field of study and to conduct the research necessary for completion of the dissertation or other research as may be required by the advisory committee.

Mathematics Requirements: Based on the qualifying examination required of all Memphis State doctoral students, the advisory committee may stipulate that appropriate mathematics courses be made a part of the student's program.

Examination Requirements: All students must take a qualifying examination in accordance with the University policy outlined under Minimum Requirements for Doctoral Degrees in this catalog. This examination, which is intended to determine the student's mastery of broad fundamental concepts, will be given only after the student has completed at least thirty semester hours of graduate study. Hence, for students entering the program with a master's degree, the exam will occur shortly after the beginning of the program. The results will be used to prescribe the remainder of the student's academic program, and successful completion of the qualifying exam is required for admission to candidacy as a doctoral student.

After the final semester of coursework, the student will be required to successfully complete written and oral comprehensive examinations that will ascertain the student's mastery of the theoretical material that will underlie the dissertation topic.

At the completion of the dissertation, the student must defend the work before the advisory committee and other interested members of the university faculty who may care to question the results of the research.

Course Requirements: Nine semester hours of major core courses are required of all doctoral students as follows: CIVL 7001, Engineering Analysis (3); ELEC 7100, Linear Systems Analysis (3); and MECH 7381, Finite Elements (3). Each concentration requires a minimum of 57 semester hours of coursework and research including the dissertation in the chosen field of study. Each student's program of study will be developed with the advisory committee.

BIOMEDICAL ENGINEERING

JOHN D. RAY, Ph.D., *Chair*
and *Coordinator of Graduate Studies*
Room 301, Engineering Administration

I. The Biomedical Engineering Department offers graduate programs leading to a Master's of Science degree with a major in Biomedical Engineering and a Doctor of Philosophy degree in the College of Engineering with a concentration in Biomedical Engineering. Students may take courses in the following areas: biomechanics, microcirculation, instrumentation, rehabilitation, and transport phenomenon.

II. M.S. Degree Program

Retention Policy

Students that have been admitted to the program on a conditional basis must satisfy all requirements of their conditional admission at the end of each semester of

enrollment. Failure to satisfy this criterion will result in dismissal from the program.

A student will be permitted two (2) grades of C in courses taken at Memphis State University. A student will be dismissed at the end of the semester in which a third grade of C or lower is earned.

Graduation Requirements

Students graduating with a Master's of Science Degree with a Major in Biomedical Engineering must complete 30 hours of course work, 18 hours must be in Biomedical Engineering, and 21 hours of 7000 level courses, which includes 6 hours of thesis credit.

Students may petition to their graduate committee to elect a non-thesis option. Students graduating under this option will be required to complete 33 hours of course work, 21 hours must be in Biomedical Engineering, and 24 at the 7000 level, which include 6 hours of individual research project courses culminating in oral and written reports.

III. Ph.D. Degree Program

See the beginning of the College section for admission, retention, and graduation requirements.

Q795 BIOMEDICAL ENGINEERING (BIOM)

6223. Electrical Engineering Instrumentation. (4). (Same as ELEC 6223). Transducers for physical systems, mechanical, temperature, acoustic and biomedical transducers; methods of processing and analyzing data. *Three lectures, three laboratory hours per week.* PREREQUISITE: Permission of instructor.

6326. Biomedical System Analysis-Mechanical. (3). (Same as MECH 6326). Introduction to concepts used in analyzing living systems. Simulation of body functions with mechanical and computer models. Familiarization with the design of mechanical bioengineering devices such as heart valves, heart-lung machines, renal analysis machines.

6403. Kinesiology. (3). (Same as PHED 6403). Analysis of bodily movements in terms of muscle forces operating on bones. PREREQUISITES: BIOL 1731 and 1732 or consent of instructor.

6350. Mechanics for Biomedical Engineers. (4). (Same as MECH 6350). Analyses of bone and joint structure of the body related to basic mechanical equations and properties, static loading, dynamic loading, fatigue, wear, corrosion.

6356. Fundamentals of Rehabilitation Engineering. (3). (Same as MECH 6356). Concepts of rehabilitation engineering and roles of rehabilitation engineering. Introduction to various mobility and communication aids for physically handicapped persons.

7214. Imaging Processing. (3). (Same as ELEC 7214). Theory and application of digital image processing, sampling, quantization, enhancement and restoration of images; use of segmentation, descriptors, and pattern recognition; architectures for image processing. PREREQUISITE: Permission of instructor.

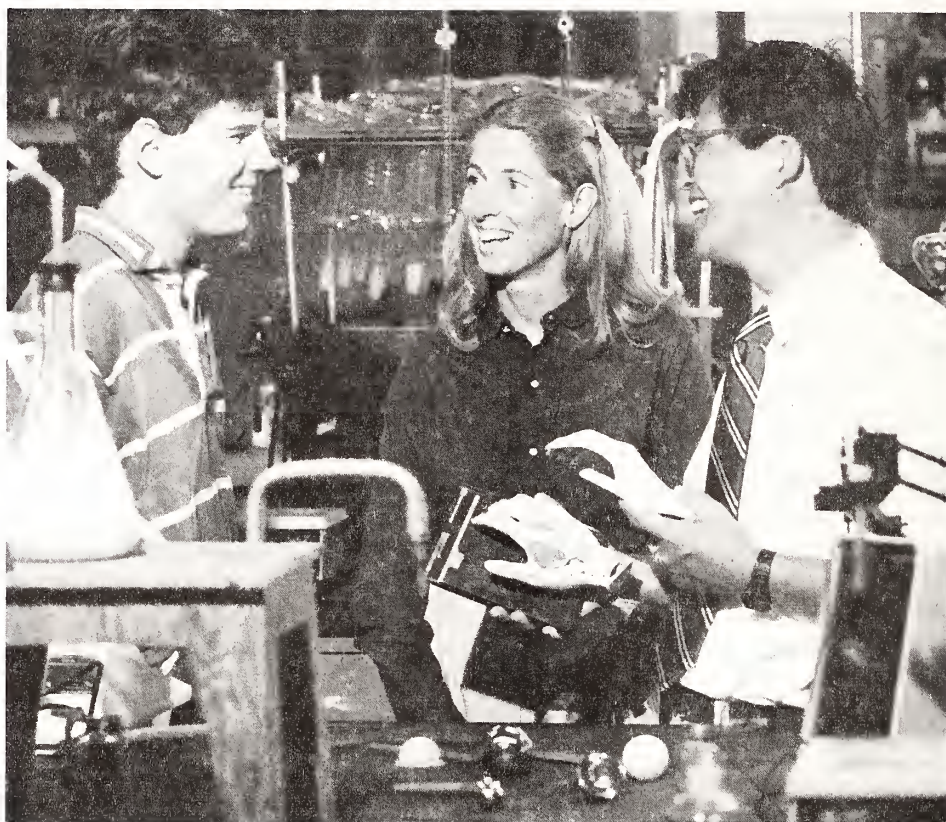
7302. Theory of Continuous Media. (3). (Same as MECH 7302). Analysis of stress and deformation at a point; derivation of the fundamental equations in Cartesian tensor notation by application of the basic laws of conservation of mass, energy and momentum in mechanics and thermodynamics.

7341. Engineering Analysis. (3). (Same as MECH 7341). Analysis of engineering systems using closed form solutions; application of Laplace transform by Heaviside transformations, ordinary and partial differential equations of the first and second order, vector and tensor algebra, Bessel functions, Fourier integral, and other selected topics.

7352. Fluid Mechanics for Biomedical Engineers. (3). (6352). (Same as MECH 7352). Elements of hydrodynamics, cardiovascular system, flow of blood in tubes with elastic walls, pulsatile blood flow, vascular walls, flow through arterial walls, models of the circulation and pulse waves system.

7354. Heat and Mass Transfer for Biomedical Engineers. (3). (6354). (Same as MECH 7354). Heat transfer, mass transfer, and heat-mass conversion in biological systems. First and second laws of thermodynamics applied to biological systems.

7501. Orthopedics I. (3). Analysis of forces, stresses and strains transmitted through musculoskeletal



system, orthopedic implants, and load assist devices; gait analysis, body lubrication and related topics.

7504. Biomedical Measurements. (3). Measurement techniques applicable in biomedical engineering; data acquisition system, mechanical instrumentation, interface systems, signal analyses; biocompatibility requirements. *Three lectures per week with laboratory demonstrations.*

7505. Computer Techniques in Biomedical Engineering. (3). Computer technology with medical applications; basic physiology and biomedical instrument devices and system; diagnostic support systems. *Two lectures per week with laboratory projects and demonstrations.*

7508. Biochemical Engineering. (3). Application of engineering principles to effect biochemical transformation through use of living cells, subcellular organelles or enzymes; overview of biotechnology, bioreactor design; cell energetics, enzyme kinetics, Michelis-Menton calculations, immobilized cells; biosensors and process control.

7509. Circulatory Flow Dynamics. (3). Mechanics of blood circulation, fluid mechanics of the heart, blood flow in arteries, unsteady flow in veins, current concepts in circulatory assist devices and other selected topics.

7510. Biomechanics I. (3). Introduction to physiological systems with emphasis on structure and function of tissue and organs; application of continuum mechanics to understanding of tissue and organ behavior at microscopic and gross levels; design analyses of surgical procedures and prosthetic devices.

7511. Biomechanics II. (3). Viscoelastic and solid biomaterials; non-Newtonian behavior of blood, synovial fluid, mucus and protoplasm; basic mechanical properties of collagen, elastin, bone, cartilage, muscle, blood vessel, and other living tissue; application of continuum mechanics to biomechanics.

7512. Biomedical Engineering Laboratory. (3). Demonstrations and experiments on basic concepts of biomedical engineering designs through surgical procedures involving experimental models.

7513. Advanced Biomechanics. (3). Modern development of biomechanics at advanced mathematical level; dynamics of the lung, blood flow, microcirculation, and muscle mechanics.

7514. Biomedical Engineering Seminar. (1). Seminars by faculty, visiting lecturers, research fellows, graduate students, and others on related topics in biomedical engineering.

7515. Biomedical Engineering Design. (3). Engineering design principles pertaining to biomedical engineering; wave propagation in tissue, flow in cardiovascular systems; electrocardiographs, heart valves, mechanical circulation devices, high frequency ventilation, etc.

7517. Cardiopulmonary Physiology for Biomedical Engineers. (3). Introduction to mechanical behavior of cardiovascular and pulmonary systems based on engineering principles; physiology of cardiovascular system followed by engineering applications to obtain quantitative descriptions.

7518. Research Techniques. (3, 6). Presentation of research techniques through organized lectures, special assignments, and selected research topics.

7519. Human Anatomy for Biomedical Engineers. (3). Musculoskeletal system of human body with heavy emphasis on engineering functions; lecturers, model studies, and cadaver observations.

7520. Physiology for Biomedical Engineers. (3). Introduction of physiology of the human body with emphasis on engineering functions; physiology of cells, membrane, respiration, cardiovascular, kidney, gastrointestinal, neurophysiology, etc.; lectures and demonstrations.

7521. Research Internship for Biomedical Engineers. (3). Independent study for biomedical engineering students in the masters program; investigation in at least one area selected from a master list and approved by the student's advisor.

7522. Advanced Research Internship. (6). Independent research problems for biomedical engineering students; investigations in three different research areas selected from a master list and approved by the student's graduate committee.

7523. Biorheology for Biomedical Engineers. (3). Application of biorheology in biomedical engineering and medicine; deformation and flow of biological materials, tube flow and viscous shear in blood, blood elements and plasma, viscoelastic properties of lung, muscle and other tissues.

7530. Biomaterial. (3). Introduction to materials used in biomedical engineering; biocompatibility and uses of implantable materials such as ceramics, polyethylene, metals, composites and other materials.

7532. Advanced Biomaterial. (3). Materials used in biomedical in relationship to corrosion, crack propagation, creep, and related topic; tissue ingrowth into materials.

7542. Advanced Kinesiology. (3). (Same as PHED 7542). Body motions as related to biomedical engineering; mathematical analysis of body motions using computer analysis, experimental techniques, and combinations. *Two lectures and three hour of laboratory per week.* PREREQUISITE: BIOM 6403 or permission of instructor.

7601. Bioelectric Phenomena. (3). (Same as ELEC 7601). Principles of electromagnetic field theory and electrical circuits applied to bioelectric phenomena; bioelectric signal evocation, recording, analysis and simulation; cell membrane biophysics and heart electrophysiology.

7602. Biophysical Electrocardiography. (3). (Same as ELEC 7602). Principles of electromagnetic field theory, mathematics and electrical circuits applied to problems that explore the biophysical basis of electrocardiography as well as methodologies for analysis.

7900-7910. Special Topics in Biomedical Engineering. (1-3). Topics are varied and announced in *Schedule of Classes*.

7991. Project I. (1-3). Independent study in Biomedical Engineering on topic selected in conjunction with instructor. Oral and written reports required.

7992. Project II. (1-3). Independent investigation of problem selected in consultation with instructor. Oral and written reports required.

† **7996. Masters Thesis.** (1, 3, 6).

† **9000. Doctorate Dissertation.** (1-12).

† *Grades of S, U, or IP will be given.*

CIVIL ENGINEERING

OTTO J. HELWEG, Ph.D., *Chair*

Room 104A, Engineering Building

MARTIN E. LIPINSKI, Ph.D., *Coordinator of Graduate Studies*

I. The department of Civil Engineering offers a graduate program leading to a Master of Science degree with a major in Civil Engineering (concentrations in Environmental Engineering, Foundation Engineering, Structural Engineering, Transportation Engineering, and Water Resources Engineering) and a Ph.D. degree with a major in Engineering (concentration in Civil Engineering).

II. M.S. Degree Program

A. Program Admission

The Herff College of Engineering has established uniform admissions criteria for all graduate programs. Exceptions to these requirements may be addressed by the Graduate Admissions and Retention Committee of the department and must be approved by the Dean.

B. Program Prerequisites

Bachelor of Science Degree

C. Program Requirements

1. Non-thesis option — 33 credit hours as required below

2. Thesis option — 30 credit hours as required below

3. 24 hours of Civil Engineering course work at the 6000 or 7000 level. This total includes thesis if that option is selected.

4. Students electing the thesis option will be required to complete an independent research project culminating in a masters thesis. Upon completion of the thesis, the student must successfully pass an oral examination to assess mastery of the thesis topic and to evaluate the student's knowledge in Civil Engineering.

5. Students electing the non-thesis option must take CIVL 7001, 7012, and 7993. In addition, non-thesis students must pass a Civil Engineering Master of Science Examination. This examination will be offered in November and April of each year. This exam will be taken in the student's final semester.

6. Concentrations:

Concentration may be made by selection of courses from the following five areas: (No special concentration is required.)

a. Environmental Engineering

6143, 6144, 7141, 7142, 7143, 7144, 7145, 7146, 7185, 7195, 7196, 7991, 7996.

b. Foundation Engineering

6136, 7132, 7133, 7134, 7182, 7991, 7996, 7130.

c. Structural Engineering

6131, 6136, 7001, 7111, 7115, 7116, 7117, 7118, 7119, 7112, 7113, 7991, 7996.

d. Transportation Engineering

6162, 6163, 6164, 7001, 7162, 7163, 7164, 7165, 7166, 7168, 7169, 7991, 7996.

e. Water Resources Engineering

7133, 7163, 7181, 7182, 7191, 7192, 7194, 7195, 7196, 7991, 7996.

D. Retention Policy

All students enrolled in the Department of Civil Engineering are expected to attain high academic achievement in all courses taken. The criteria listed below will be used to determine retention status of students enrolled in the program leading to a Master of Science degree in Civil Engineering.

1. Students having been unconditionally admitted to the graduate program in Civil Engineering who maintain a cumulative grade point average of 3.00 or higher will be considered to be in good standing.

2. Students must maintain a cumulative grade point average of 3.00 in all course work at Memphis State University, in all Civil Engineering course work at Memphis State University, and for all 7000 level course work at Memphis State University at the end of each semester of enrollment. Any student not meeting these conditions will be placed on probation.

3. Students admitted on probation must maintain a 3.00 average at the end of each semester until 9 hours of graduate credit are earned. A student having a cumulative grade point average less than 3.00 at the end of the period described will be dismissed. A student having a cumulative grade point average of 3.00 or above will then be subject to the retention criteria listed in 2 above.

4. A student will be permitted two (2) grades of C or lower in graduate courses taken at Memphis State University. A student will be dismissed from the program at the end of the semester in which a third grade of C or lower is earned.

5. A student who has been dropped from the graduate program in the Department of Civil Engineering will be denied permission to enroll in Civil Engineering courses in semesters subsequent to dismissal from the department.

III. Ph.D. Degree Program

See the beginning of the College section for admission, retention, and graduation requirements.

Q800 CIVIL ENGINEERING (CIVL)

6131. Intermediate Steel Design. (3). Design of plate girders and composite beams; moment connections; building design. PREREQUISITE: CIVL 3131.

6136. Intermediate Reinforced Concrete Design. (3). Design of two-way slab systems; column design including length effects; integrated building design using current code provisions. PREREQUISITES: CIVL 4135.

6143. Environmental Engineering I. (3). Basic physical chemical treatment concepts for water and wastewater will be presented with laboratory demonstration of unit operations and processes as well as derivation of design data through laboratory studies. *Two lecture, three laboratory hours per week.* PREREQUISITE: Consent of instructor.

6144. Environmental Engineering II. (3). Basic biological treatment concepts for wastewater with laboratory demonstration of unit operations as well as

derivation of design data through laboratory studies. *Two lecture, three laboratory hours per week.* PREREQUISITE: Consent of instructor.

6162. Traffic Engineering. (4). Traits and behavior patterns of road users and their vehicles. Includes traffic signs and signals, pavement markings, hazard delineation, capacity, accidents and parking analysis. *Three lecture, three laboratory hours per week.* PREREQUISITE: CIVL 3161.

6163. Airport Planning and Design. (3). Aeronautical demand and air traffic control; airport and runway configuration; capacity and delay analysis; geometric design of runways and taxiways; airport access and parking; ground movements and baggage movements. PREREQUISITE: CIVL 3161.

6164. Route Location and Design. (3). Elements of route location and design; emphasis on horizontal and vertical alignment, curvature, gradient and sight distance. *Two lecture, three laboratory hours per week.* PREREQUISITE: CIVL 1101.

6180. Intermediate Hydrology. (3). Current methods and techniques used in hydrologic analysis and design of water resources projects, streamflow hydrograph analysis, groundwater hydrology, design flood determination and project feasibility. *Three lecture hours per week.* PREREQUISITE: CIVL 3181 or consent of instructor.

6190. Water Resources Planning and Management. (3). Application of engineering principles to planning and design of multipurpose water resources projects, various physical components and appurtenances of water resources projects and economic, financial, and social feasibility of various purposes. *Three lecture hours per week.* PREREQUISITE: CIVL 3181, 4111 or consent of instructor.

7001. Engineering Analysis. (3). Numerical integration of linear and non-linear differential equations; finite difference methods; systems of linear algebraic equations; applications to engineering problems. PREREQUISITE: Consent of instructor.

7012. Probabilistic Methods in Engineering. (3). Concepts and methods of probability and statistics that are essential for modeling engineering problems under conditions of uncertainty. Application to practical problems. PREREQUISITE: Consent of instructor.

7111. Matrix Analysis of Structures. (3). Matrix formulation of force and displacement methods; emphasis on the direct stiffness method; computer applications. PREREQUISITE: Consent of instructor.

7112. Plastic Design of Steel Structures. (3). (7122). Plastic analysis and design of steel structures; application to multi-story buildings. PREREQUISITE: Consent of instructor.

7113. Prestressed Concrete Design. (3). (7121). Theory of prestressing. Design of prestressed concrete beams, slabs and box girders. Statically determinate and indeterminate structures. PREREQUISITE: Consent of instructor.

7115. Plate and Shell Structures. (3). (Same as MECH 7115) Analysis of rectangular and circular flat plates; large deflections of plates; variational methods; analysis of shells as surfaces of revolution under symmetric and unsymmetric loading.

7116. Structural Dynamics. (3). Dynamic analysis of single-degree-of-freedom structures; response to general dynamic loading; modal analysis of multistory shear buildings; introduction to nonlinear and random vibration.

7117. Finite Element Methods in Structural Mechanics. (3). Structural idealization, stiffness properties of elements, structural analysis of element assemblage. Plane stress and strain problems. Applications to problems of plates and shells. Computer solution of large systems. PREREQUISITE: Consent of instructor.

7118. Design of Structural Systems. (3). Integrated design of buildings or bridges; application of current codes and specifications. PREREQUISITE: Consent of instructor.

7119. Earthquake Resistant Design. (3). Earthquake strong motion; response spectrum analysis; seismic design of buildings.

7130. Foundation Analysis. (3). Analysis of footing, raft, pile and pier foundations; analysis of earth pressures on retaining walls, rigid bulkheads, flexible bulkheads and braced excavations.

7132. Advanced Soil Mechanics. (3). Stresses in soil masses; porewater stresses; consolidation and settlement; shear strength; applications to problem solution.

7133. Earth Structures. (3). Analysis, design and construction of earth dams, levees, embankments and slopes; soil stabilization; seepage, drainage and flow nets. PREREQUISITE: CIVL 7132.

7134. Foundation Engineering. (3). Critical study of foundation design of completed projects using case records; emphasis on failures and performance records. PREREQUISITE: CIVL 7130, 7132.

7141. Environment Engineering Design I. (3). Design of a water treatment plant; application of fundamental water treatment theory; evaluation of alternatives; selection and design of optimum alternative. PREREQUISITE: CIVL 6143 or consent of instructor.

7142. Environment Engineering Design II. (3). Design of a wastewater treatment plant; application of fundamental wastewater treatment theory; evaluation of alternative; selection and design of optimum alternative. PREREQUISITE: CIVL 6144 or consent of instructor.

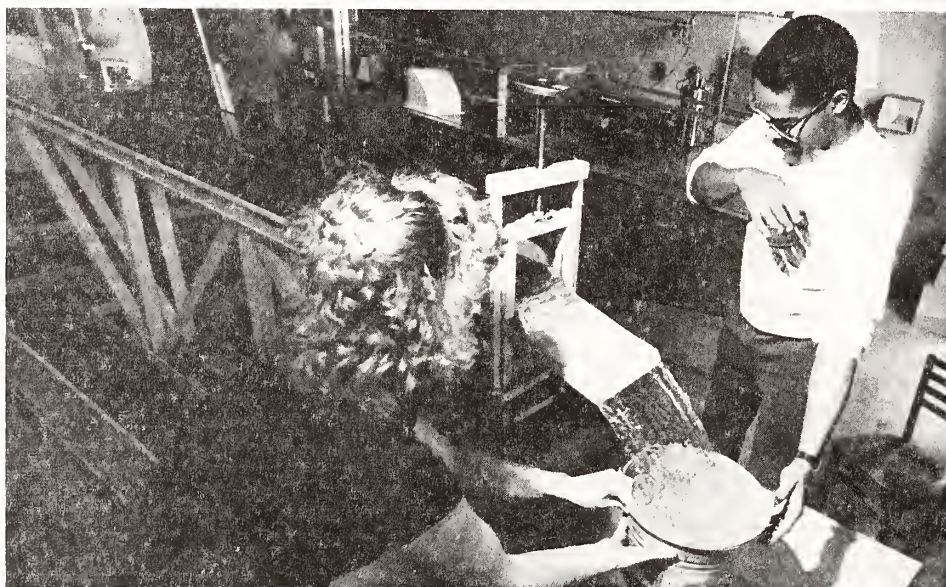
7143. Solid Waste Management I. (3). Systems approach to solid waste generation, characterization, collection, transportation, disposal emphasizing both

ogies for reducing conventional and toxic industrial pollutant discharges; emphasis on water conservation, wastewater recycle/reuse, and optimum treatment strategies for waste streams from major industries. PREREQUISITE: Consent of instructor.

7162. Transportation Systems Evaluation. (3). Transportation problems, goals, and objectives; evaluation and decision-making techniques; measurement of variables and intangibles in transportation decisions; cost allocation and benefit transfer; risk and uncertainty; financing and implementation; differential impacts of transportation improvements. PREREQUISITE: Consent of instructor.

7163. Transportation on Inland Waterways. (3). Inland waterways (IWW) freight characteristics and floating equipment; extent and nature of IWW in U.S.; terminal sites and harbors, intermodal and ocean freight interrelationships; materials handling at terminals; terminal types and geometrics; problems and solutions. PREREQUISITE: Consent of instructor.

7164. Urban Transportation Engineering. (3). A review of the transportation problem as it relates to the development patterns in American cities. The theory and application to engineering and socio-economic factors directed toward the formulation of models for conducting transportation studies. PREREQUISITE: Consent of the instructor.



domestic and industrial wastes. PREREQUISITE: Consent of instructor.

7144. Solid Waste Management II. (3). Systems approach to unique solid wastes (flammable industrial, sewage sludge, etc.), as well as resource recovery and energy conversion as disposal practices. PREREQUISITE: Consent of instructor.

7145. Advanced Biological Treatment. (3). In-depth study of biological kinetics applicable to wastewater treatment (industrial and domestic); model evaluations; biological treatment systems. PREREQUISITE: CIVL 6144 or consent of instructor.

7146. Advanced Physical/Chemical Treatment. (3). An in-depth analysis of theory and practice of advanced water and wastewater treatment processes; emphasis on adsorption processes, ion exchange, membrane processes, chemical oxidation, land treatment, nutrient removal, and sludge treatment and disposal. PREREQUISITE: CIVL 6143 or consent of instructor.

7153. Water Quality Modeling of Streams. (3). Water quality model conceptualization; emphasis on geometric representation, temporal variation, hydrodynamic considerations, and solution techniques. Water quality models incorporating physical, biological, and chemical processes; verification of water quality models; case histories. PREREQUISITE: Consent of instructor.

7154. Industrial Wastewater Treatment. (3). In-plant control measures and end-of-pipe treatment technol-

7165. Geometric Design of Transportation Systems. (3). Design of streets and highways with emphasis on the factors and features controlling safe and efficient vehicle operation. Applications of design concepts to urban and rural systems, intersections, interchanges, safety appurtenances, and parking facilities. PREREQUISITE: CIVL 6164 or consent of instructor.

7166. Design of Highway and Airport Pavements. (3). Design practices, materials and testing of flexible and rigid pavements. PREREQUISITE: Consent of instructor.

7168. Traffic Engineering Operations. (3). Theory of traffic control: traffic laws and ordinances; application of traffic control devices; analysis and design of traffic signal systems; parking control and design; pedestrian control; one-way and unbalanced lane operation; roadway illumination; selected operational problems. PREREQUISITES: CIVL 6162 or consent of instructor.

7169. Mass Transit Systems. (3). Operational analysis of equipment and facility design and service characteristics of urban mass transit systems; analysis of capacity, speed, accessibility, terminal operations; study of financing, decision-making, administration and marketing policies and practices; trends in future transit technology. PREREQUISITE: Consent of instructor.

7181. Hydrologic Techniques. (3). Current hydrologic techniques involving hydrologic input for hydraulic design of bridges, culverts, storm sewers, dams and reservoirs; techniques involve extreme value statistics, model hydrographs, and flood routing with computer applications. PREREQUISITE: Consent of instructor.

7182. Engineering Aspects of Sedimentation and Erosion. (3). (7135). Soil erosion and sedimentation process within a watershed; emphasis on means of controlling erosion and sediment from land-disturbing activities. PREREQUISITE: Consent of instructor.

7185. Hydraulics of Open Channels. (3). (7148). Phenomena accompanying flow of water in open channels; uniform and varied flow, critical conditions, backwater curves or water surface profiles, hydraulic jumps, hydraulic drops and various design application. PREREQUISITE: Consent of instructor.

7191. Computer Application in Water Resources. (3). Application of current computer programs used in hydrology, hydraulics, sediment transport, groundwater flow, water quality, and water resources engineering and planning. Consent of instructor.

7192. River Engineering. (3). River mechanics and principles governing river regulation and improvement, with emphasis on navigation and flood control structures. PREREQUISITE: CIVL 7185 or consent of instructor.

7194. Computation River Hydraulics. (3). (7149). Advanced studies in computational open channel hydraulics; major emphasis on unsteady flow simulation in natural rivers, dynamic flood routing, sediment transport and transport of pollutants. PREREQUISITES: CIVL 7001 and CIVL 7185, or consent of instructor.

7195. Groundwater Hydraulics. (3). Theory of ground water flow; computer simulation models; well hydraulics, design and construction, pump selection; computer methods in well testing and design. Ground water contribution to water demand and conjunctive use.

7196. Urban Drainage. (3). Flooding and pollution problems associated with urban areas; application of planning, analysis, and hydraulic design techniques for storm water and erosion control measures. PREREQUISITE: CIVL 7185 or consent of instructor.

7900-10. Special Topics in Civil Engineering. (1-3). Topics are varied and announced in the *Schedule of Classes*.

7991. Projects. (3). Independent investigation of problem selected in consultation with instructor; report required. Nine laboratory hours per week.

7993. Project and Report. (3). Independent study for students in non-thesis option program. Students demonstrate ability to pursue, complete, and report on project related to Civil Engineering practice. Written and oral report prepared for acceptance by faculty committee. Nine laboratory hours per week.

†7996. Thesis (1, 3, or 6).

†9000. Dissertation (1-12).

†Grades of S, U, or IP will be given.

ELECTRICAL ENGINEERING

CHARLES W. BRAY, Ph.D., *Interim Chair*

Room 206, Engineering Building

CARL E. HALFORD, Ph.D.,

Coordinator of Graduate Studies

Room 205, Engineering Building

I. The Department of Electrical Engineering offers graduate programs leading to the Master of Science degree with a major in Electrical Engineering (concentrations in Automatic Control Systems, Communications and Propagation Systems, Electro-optical Systems, and Engineering Computer Systems) and a Ph.D. degree with a major in Engineering (concentration in Electrical Engineering).

II. M.S. Degree Program

A. Program Requirements

1. Thesis option. 30 semester hours, including a thesis (6 semester hours). An average grade of "B" must be maintained in ALL Electrical Engineering graduate coursework.

a. No more than 9 semester hours may be taken outside the department. Adviser's approval is required.

b. At least 21 hours at the 7000 level are required, of which at least 18 hours must be in Electrical Engineering.

2. Non-thesis option. 33 semester hours. An average grade of "B" must be maintained in ALL Electrical Engineering graduate coursework.

a. No more than 9 semester hours may be taken outside the department. Adviser's approval is required.

b. Each student will be required to complete ELEC 7991 or ELEC 7992 for a total of at least 3 hours.

c. At least 23 semester hours at the 7000 level required, of which at least 18 hours must be in Electrical Engineering.

4. All students are required to pass a comprehensive exam during their last semester.

5. Students may elect to pursue graduate work in one of the following areas of concentration by completing 21 semester hours of coursework. At least 12 of the 21 semester hours must be taken at the 7000 level.

a. Electro-optical Systems: ELEC 6240, 6241, 6242, 6243, 7211, 7214, 7241, 7243, 7244, 7245, 7247, 7260.

b. Automatic Control Systems: ELEC 6251, 6252, 6253, 6255, 6256, 6261, 7100, 7240, 7251, 7252, 7521, 7522, 7523, 7524, 7525.

c. Engineering Computer Systems: ELEC 6222, 6230, 6232, 6270, 6274, 6271, 6272, 7214, 7215, 7234, 7240, 7260, 7261, 7262, 7263, 7264, 7265, 7266, 7267, 7271, 7272, 7273.

d. Communications and Propagation Systems, ELEC 6212, 6213, 6230, 6232, 6233, 6234, 7211, 7213, 7231, 7232, 7233, 7242, 7244, 7251, 7252, 7253, 7254.

Note: Projects I or II (ELEC 7991 or 7992) or Thesis (ELEC 7996) may be taken for credit in any of the areas of concentration.

B. Retention Requirements

All students enrolled in the Department of Electrical Engineering are expected to attain high academic achievement in all courses taken. The criteria listed below will be used to determine retention status of students enrolled in the program leading to a Master of Science degree in Electrical Engineering.

1. Students having been unconditionally admitted to the graduate program in Electrical Engineering who maintain a cumulative grade point average of 3.00 or higher will be considered to be in good standing if no more than two (2) grades of C or lower have been earned. (See item 3 below).

2. Students must maintain a cumulative grade point average of 3.00 at the end of each semester of enrollment in all course work at Memphis State University, including all Electrical Engineering course work and all 7000 level course work. Any student not meeting these conditions will be placed on probation by the department.

3. A student will be permitted two (2) grades of C or lower in graduate courses taken at Memphis State University. A student will be dismissed at the end of the semester in which a third grade of C or lower is earned.

4. A student who has been dropped from the graduate program in the Department of Electrical Engineering will be denied permission to enroll in Electrical Engineering courses in semesters subsequent to dismissal from the department.

III. Ph.D. Degree Program

See the beginning of the College section for admission, retention, and graduation requirements.

Q820 ELECTRICAL ENGINEERING (ELEC)

6202. Electrical Power Systems. (3). Investigation of problems associated with the transmission of electrical energy. Load-flow studies, and fault analysis by use of symmetrical components.

6204. Power Distribution Systems. (3). Distribution of power from transmission systems to users: primary and secondary feeders; voltage regulation; underground, overhead and network design; lightning and protective device coordination.

6212. Electromagnetic Field Theory II. (4). Plane waves, steady state and transient solutions of

transmission line equations. Steady state solutions of waveguide equations.

6213. Antenna Theory and Design. (4). Introduction to theory of operation and design of antennas. Determination of antenna radiation characteristics. Introduction to antenna array theory. *Three lecture, three laboratory hours per week.*

6221. Electronics III. (4). Applications of analog and digital electronic circuits; special purpose circuits and devices. *Three lecture, three laboratory hours per week.*

6222. Digital Logic and Computer Design. (3). Applications of digital system design using MSI, LSI, and VLSI circuits; design of arithmetic logic units, multiple-input controllers, and practical interfacing techniques.

6223. Electrical Engineering Instrumentation. (4). Transducers for physical systems; mechanical, temperature, acoustic and biomedical transducers; methods of processing and analyzing data. *Three lecture, three laboratory hours per week.*

6230. Data Communications Systems. (3). Data communications in information and computing systems. Analog and digital means of transmitting and controlling information. Organization and requirements of data communication systems including modulation and demodulation, multiplexing, switching, error detection and correction.

6231. Communication Theory. (3). Frequency and time domain; modulation, random signal theory; autocorrelation; basic information theory, noise, communication systems.

6232. Discrete Signal Processing. (3). An introduction to deterministic and random discrete-time signal time averaging, digital filtering, spectral analysis, and detection and estimation of signals. Applications to computer processing of biomedical, seismic, and radar signals.

6233. Satellite Communications. (3). Earth-satellite link model; signal processing and interfacing; modulation techniques for satellite systems; coding and synchronization methods.

6234. Error Correcting Codes. (3). Galois fields. In-depth survey of current error correcting codes for protection of digital data communication systems. Random and burst error protection; cyclic codes; convolutional codes.

6240. Introduction to Quantum Electronics. (3). Quantum concepts, Schrodinger equation, quantization of electromagnetic radiation. Laser theory and application.

6241. Solid State Physical Electronics. (3). Quantum concepts; statistics; crystal structure; conduction processes in solids; p-n junctions and devices; field-effect devices; charge transfer devices.

6242. Electro-Optical Systems. (3). Principles of radiometry and the engineering aspects of electro-optical devices such as lasers, trackers, FLIRs, infrared sources and detectors. Video techniques for display and analysis.

6243. Linear Optical Systems. (3). Review of Fourier techniques for analysis and design of linear systems, extension to 2-d methods; 2-d transforms applied to linear optical systems and data processing.

6251. Control System Engineering. (3). General equations of physical linear systems and their transfer functions. Transient analysis and stability of control systems. Bode plots, Nichols plot, Routh-Hurwitz criterion, root locus method, introduction to compensation techniques and systems in state space.

6252. Digital Control Systems. (3). Problems involved with and analysis techniques applicable to digital control systems. Requires *a priori* knowledge of Laplace transforms. Basic knowledge of feedback control theory desirable.

6253. Control Systems Laboratory. (1). Investigation of fundamental properties associated in analysis of control systems, compensating networks, analog and digital computer simulations. COREQUISITE: ELEC 6251.

6255. Introduction to Robotics. (3). Review and application of kinematics, control systems and microprocessors to robot manipulators.

6261. Introduction to Network Synthesis. (3). Synthesis of canonical driving point impedances; design of two port networks and transfer function

realizations utilizing active networks and techniques. Project required.

6270. Introduction to Microprocessors. (3). LSI circuitry, microprocessor architecture, hardware and software, applications and system design.

6271. Computer Interfacing. (3). Hardware and software aspects of connecting computers to peripherals, including tradeoffs between hardware and software; connecting CPUs to ROM, RAM, parallel ports and serial ports; applications of serial and parallel ports, including IEEE-488, Centronics, RS-422, RS-499, and RS-485 interfaces; backplane buses, displays, key-boards, A/D and D/A converters, linking interface routines to application software and operating systems.

6272. Engineering Software. (3). Use of scientific software package. Introduction to hierarchical operating systems. Use of the C programming language.

6274. Software Design with ADA. (3). Introduction to ADA; detailed software design methodology using structured and object oriented techniques for large systems; reusable components, ADA programming support environment. PREREQUISITE: Knowledge of a structured high order language.

6900-10. Special Topics in Electrical Engineering. (1-3). Topics are varied and announced in *Schedule of Classes*.

7021. Modern Engineering Concepts. (3). Introduction to the theories and the technological society. Concepts of modeling, and the use of analogies and analog computers in the simulation of processes. An introduction to man and machine logic, and the functioning of digital computers. This course cannot be applied toward a major in engineering.

7100. Linear Systems Analysis. (3). Systems concepts and mathematical tools including Z-transforms; analysis of systems, both continuous and discrete, in the time domain and frequency domain.

7201. Faulted Power Systems. (3). Modeling transmission line with ABCD parameters; micro-computer based steady-state and transient analysis of isolated and connected faults; minimizing residual fault currents and recovery voltages, microcomputer algorithms for fault location, identification, isolation, zone discrimination, phases selection, and selective control and stability enhancement of M-N networks.

7204. Computer Aided VLSI Design. (3). Design techniques for VLSI circuits; bipolar and MOS technologies; design rules; CAD tools, timing, testability and VLSI architectures.

7211. Advanced Electromagnetic Field Theory. (3). Advanced studies in electromagnetic fields, radiation and propagation of energy. PREREQUISITE: ELEC 6212 or permission.

7213. Radiation and Antenna Theory. (3). Radiation characteristics of conducting and dielectric configurations. Theoretical analysis of antennas and antenna systems. Engineering applications of antennas and radiating structures. PREREQUISITE: ELEC 6213 or permission.

7214. Image Processing. (3). Theory and applications of digital image processing, sampling, quantization, enhancement and restoration of images; use of segmentation, descriptors, and pattern recognition; architectures for image processing.

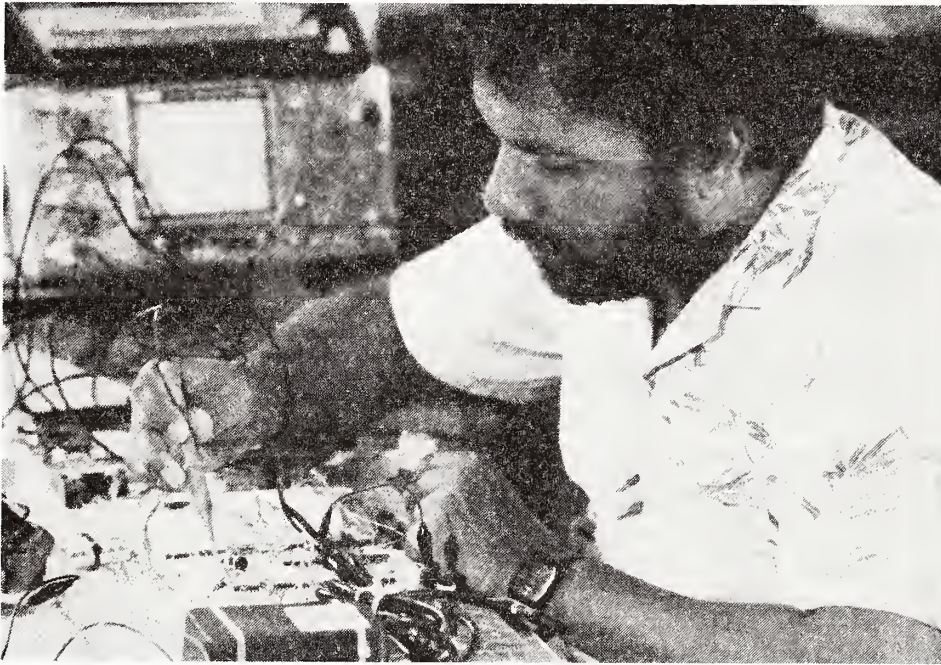
7215. Digital Signal Processing. (3). Application of discrete transform theory to spectral analysis, digital filters, random signal analysis. PREREQUISITE: Permission of instructor.

7230. Solid State Devices. (3). Internal function, limitations, and applications of unique components found in modern telecommunication designs. Electro-optic devices, detectors, resonators, antenna, and negative resistance components. PREREQUISITE: ELEC 7231.

7231. Transistor Circuit Analysis and Design. (3). Analysis and design of small and large signal amplifiers. Multistage amplifiers. Analysis and design of oscillators. Feedback and stability in amplifier design.

7232. Analog Communication Circuit Design. (3). Design and applications of analog communication systems. Transmitter and receiver technologies. PREREQUISITE: ELEC 7231 or permission.

7234. Computer Communication Networks. (3). Concepts and problems, open and feedback systems with a common channel, coordinated mode operation, routing, neural network methods for routing based on



optimum flows, congestion, optimization of channel capacities and network topologies.

7240. Neural Network Methods. (3). Theories, concepts and domain of application of neural networks; network paradigms of Hopfield, Grossberg, Kohonen and other; architecture and capabilities of neural networks; design and implementation of neural networks for practical applications.

7241. Nonlinear Optics. (3). Multiphoton effects in materials, electro-optic retardation, and other advanced optical effects of interest in engineering of optical systems.

7242. High Frequency Amplifier Design. (3). Generalized two-port devices. Amplifier design utilizing y parameters and s parameters. Conjugate matching and stability. The Smith Chart as a design tool. Immittance matching with microstrip structures.

7243. Fourier Optics. (3). Analysis of two-dimensional linear systems, scalar diffraction theory, Fresnel and Fraunhofer diffraction. Fourier transforming properties of lenses, spatial frequency analysis of optical systems, optical information processing and holography.

7244. Fiber Optics Communications. (3). Application and design of fiber optical cables, transmitters and receivers. Technical tradeoffs related to cables, sources and detectors. PREREQUISITE: ELEC 6240 or equivalent.

7245. Statistical Optics. (3). Techniques for describing random processes applied to generation, propagation, imaging and detection of light; statistical properties of light, coherence, imaging with inhomogeneous media, statistics of photoelectric detection of light.

7247. Integrated Optics. (3). Review of current literature pertaining to integrated optics, innovative solid state optical structures, and optoelectronic devices.

7251. Random Signals and Noise. (3). Statistical methods for describing and analyzing random signals and noise. Autocorrelation, crosscorrelation, and spectral density functions. Optimal linear filter theory.

7252. Information Theory. (3). Introduction to entropy and channel capacity, group codes, block codes, cyclic codes. Application of coding techniques to improve system reliability. Error correcting codes. PREREQUISITE: ELEC 7251 or permission of instructor.

7253. Adaptive Filtering. (3). Introduction to adaptive filters and adaptive processing; optimum estimation techniques; adaptive algorithms for finite and infinite impulse response filters; recursive and total least squares estimation lattice filters; frequency domain adaptive filtering analog and digital adaptive filter realizations; applications to computer communication networks, speech processing, adaptive array processing, and system modeling.

7254. Advanced Communications Principles. (3). Probabilistic nature of communications; development of principles of optimum receiver design; RF Link channel modeling; waveform communication.

7260. Optical Computing. (3). Current state of optical computing; optical and optoelectronic logic gates, devices, components; architecture of optical, digital optical, and neural optical computers; optical interconnections, and fan-in and fan-out considerations; parallel architectures, parallel memories, and parallel algorithms for signal and image processing, pattern recognition, and other appropriate applications.

7261. Architecture and Design of Digital Computers. (3). Advanced logical design of hardware and organization structure of digital computers; architectural properties and control strategies; processor and memory organizations, addressing and interrupt structures, and I/O controllers; hardware and software trade-offs, and speed considerations.

7262. Fundamentals of Artificial Intelligence. (3). Matching and goal reduction, symbolic and numeric constraints, vision and rule-based systems, logic and deduction, knowledge representation, language understanding, perception, and learning; VLSI implementation of knowledge systems.

7263. Architecture, Design of Multiprocessing Computers. (3). Design philosophies for high speed multiprocessing systems; addressing schemes, memory allocation and protection, processor and memory allocation; stack, parallel, pipeline, and data flow computers; multiprocessing systems and applications. PREREQUISITE: Permission of instructor.

7264. Fault-Tolerant Multiprocessing Systems. (3). Models and methods for analysis and design of fault-tolerant hardware systems, software systems and multiprocessing computing systems; TMR and NMR Systems; fault diagnosis, coding, techniques, reconfiguration, design verification and testing; analysis and architecture of fault-tolerant multiprocessing systems, current fault-tolerant multiprocessing systems and applications.

7265. AI Machines and Parallel Architecture. (3). Computer architecture for artificial intelligence; highly parallel and massively parallel architectures, and VLSI implementation; highly parallel shared memory machines; LISP machines; supercomputers and connection machines; software for parallel AI machines; special purpose pipelined AI hardware; functional programming and logic-related architectures; knowledge based computers; future AI machines.

7266. PROLOG Processing for AI Applications. (3). Introduction to logic, logic programming, PROLOG syntax, trees and lists, backtracking and cut, input and output, built-in predicates, example programs, VLSI realizations, memory hierarchies, garbage collection

techniques, architecture of PROLOG machines and expert systems, AI applications.

7267. LISP Processing for AI Applications. (3). Fundamentals of LISP programming, symbolic processing, searching, goal reduction, matching, problems and problem spaces, problem solving methods and game playing, VLSI realization, memory hierarchies, garbage collection techniques, architecture of LISP machines and expert systems, AI applications.

7271. Minicomputer Systems. (3). Modern mini and microcomputer systems. Emphasis on computer architecture and how it influences instruction, data and control structures.

7272. Microprogramming. (3). Principles and practices of microprogramming in modern computer systems.

7273. Modern Microprocessors. (3). Introduction to capabilities of state-of-the-art microprocessors and their supporting components.

7521. Advanced Control System Engineering. (3). Cascade and feedback compensation. Analysis and control of nonlinear systems. Introduction to optimal techniques. PREREQUISITE: ELEC 6251 or permission.

7522. Stochastic and Adaptive Controls Theory. (3). Principles and applications of statistical design, random processes in automatic control.

7525. Robotics: Theory and Practice. (3). Methods of design and operation of computer-based robots; kinematics and dynamics of six jointed arm; force, moment, torque, compliance, control methods, and trajectory planning; integration of computer vision systems to form and hand-eye coordinated systems, man-machine communication.

7523. Theory of Optimal Control Systems. (3). State variable description of systems, maximum principle of Pontryagin, optimization of linear systems with quadratic performance measures, time and field optimal systems.

7524. Parameter Estimation and Controls. (3). Principles of parameter estimation and application to systems engineering.

7601. Bioelectric Phenomena. (3). Principles of electromagnetic field theory and electrical circuits applied to bioelectric phenomena; bioelectric signal evocation, recording, analysis and simulation; cell membrane biophysics and heart electrophysiology.

7602. Biophysical Electrocardiography. (3). Principles of Electromagnetic Field Theory, Mathematics, and Electrical Circuits applied to problems that explore biophysical basis of electrocardiography as well as methodologies for analysis.

7900-10. Special Topics in Electrical Engineering. (1-3). Topics are varied and announced in *Schedule of Classes*.

7991. Projects I. (1-3). Independent investigation of a problem selected in consultation with instructor; report required. Repeatable by permission.

7992. Projects II. (1-3). Independent investigation of a problem selected in consultation with instructor; report required. Repeatable by permission.

†7996. Thesis. (1-6). Master's thesis.

†9000. Dissertation. (1-12).

† Grades of S, U, or IP will be given.

ENGINEERING TECHNOLOGY

KENNETH D. CREMER, Ed.D., *Chair*

Room 220 Technology Building

CHARLES R. COZZENS, D.Ed.

Coordinator of Graduate Studies

Room 322 Technology Building

I. The Department of Engineering Technology offers a graduate program leading to the Master of Science degree with a major in Technical Education. Concentrations are available in Architecture, Construction, Electronics, and Manufacturing.

II. M.S. Degree Program**A. Program Admissions**

1. Admission requirements of the College.
2. Personal interview with Coordinator of Graduate Studies.

B. Program Prerequisites

Applicant must have completed a minimum of 18 semester hours of upper division credit in an appropriate area of Technology or related area.

C. Program Requirements

1. A total of 33 semester hours - non-thesis option. Students selecting the non-thesis option must complete TECH 7991, Projects I.

2. A total of 30 semester hours for candidates selecting the thesis option.

3. 7015 Applied Statistical Methods of Industry must be completed by each candidate.

4. A minimum of 12 semester hours must be taken in one concentration area.

5. Candidates for the degree must average a B in all Technology courses.

6. Candidates for the degree must pass a comprehensive written examination conducted by three faculty members designated by students and their advisers.

a. Comprehensive examinations may be taken by students in good standing during the last term of course work.

b. The comprehensive written examination will be administered the first Monday of April, July and November of each year. If the university is not in session on these dates the following Monday will be designated.

7. A follow-up oral examination is optional with the examining committee.

8. Concentrations may be made by selection of courses from the following four areas:

a. Architecture: 6472, 7103, 7105, 7106, 7601, 7602, 7605, 7991, 7992, 7996.

b. Construction: 6470, 6950, 7103, 7105, 7106, 7605, 7991, 7992, 7996.

c. Electronics: 6261, 7223, 7263, 7273, 7283, 7801, 7811, 7821, 7822, 7831, 7991, 7992, 7996.

d. Manufacturing: 6470, 6472, 6474, 6476, 6478, 6950, 7401, 7402, 7404, 7406, 7408, 7414, 7991, 7992, 7996.

Q890 TECHNOLOGY (TECH)

6261. Computer Applications in Technology. (4). Applications of the C programming language to problems from selected areas of engineering technology; data collecting, modeling techniques, constraints, program development and validation, and interfacing with peripherals and machine language. *Three lecture, three laboratory hours per week.* PREREQUISITE: TECH 3251.

6470. Human Performance in Manufacturing. (3). Man-machine environment systems; man's anatomical, physiological and psychological capabilities and limitations related to work and the workplace. Application through lab experiences and plant visits. *Two lecture, three laboratory hours per week.*

6472. Computer Aided Design. (3). Overview of computer aided design (CAD) technology; underlying principles, integrated systems philosophy, disciplinary and industrial applications, hardware and software principles, management and human aspects, benefits. *Two lecture, three laboratory hours per week.* PREREQUISITE: TECH 1511 or TECH 1521.

6474. Automation and Robotics. (3). (6476). Capabilities and applications of programmable logic controllers; computers and robots in automated systems. *Two lecture, three laboratory hours per week.* PREREQUISITE: Permission of instructor.

6476. Computer Aided Manufacturing. (3). (6474). Use of computers in manufacturing including product, instrumentation and process environments; hardware and software fundamentals. Survey of numbering systems and digital electronics. Emphasis on applications and management aspects of computer aided manufacturing systems. *Two lecture, three laboratory hours per week.* PREREQUISITE: Permission of instructor.

6478. Advanced Numerical Control Programming. (3). Advanced applications and concepts of APT and

COMPACT II; programming languages for numerical control; use of family part programming and subroutines. *Two lecture, three laboratory hours per week.* PREREQUISITE: TECH 6476 or permission of instructor.

6950. Product Safety Management. (3). Modern concepts of accident prevention by means of safety analysis. Analyses of responsibilities and requirements of management in producing safe consumer products. Emphasis on electrical and mechanical hazards.

7015. Applied Statistical Methods of Industry. (3). Application of statistical concepts to production processes and data gathering in industry including frequency, distribution, location and dispersion, probability dispersions, confidence limits, significance tests and industrial sampling.

7103. Theory of Construction Technology. (3). Contemporary concepts involved in planning, production, fabrication, and erection; the interrelationship of construction materials and economic factors.

7105. Construction Planning and Scheduling. (3). Contemporary methods used in construction planning and scheduling. Emphasis on the Critical Path Method-CPM in construction with computer application. Solution of actual problems will be stressed.

7106. Construction Equipment Cost Analysis. (3). A thorough study of the different elements of construction cost — one being equipment. The annual cost, depreciation, replacement, and retirement of construction equipment. Benefit-cost ratio. Income tax influence on buying of new equipment. Other aspects of construction cost. Computer application in the construction cost analysis.

7223. Computer Techniques in Laboratory Environment. (3). Laboratory applications of microcomputer and minicomputer to process control, digital/data communications, simulation, and signal conditioning. *One lecture, five laboratory hours per week.* PREREQUISITE: Permission of instructor.

7263. Advanced Digital Circuits and Applications. (3). Pragmatic treatment of analysis, synthesis, and applications of digital integrated circuits and systems. *Two lecture, three laboratory hours per week.* PREREQUISITE: Permission of instructor.

7273. Advanced Microprocessor Architecture. (3). Structure of the microprocessor; Bit-slice and monolithic systems; ALU design, data transfer and storage registers and control unit logic; microprogramming techniques. *Two lecture, three laboratory hours per week.* PREREQUISITE: Permission of instructor.

7283. Advanced Data Acquisition. (3). Use of digital and analog circuits to accomplish the computer analysis of empirical data; transducers, digital and analog conversions, linear and operational amplifiers, interfacing techniques; data scaling and manipulation. *Two lecture, three laboratory hours per week.* PREREQUISITE: Permission of instructor.

7401. Advanced Motion and Time Analysis. (3). Review of methods analysis and time study; advanced studies in performance rating, standard data, pre-determined motion times, work sampling and formula construction. PREREQUISITE: Tech 4460 or permission of instructor.

7402. Advanced Statistical Quality Control. (3). Taguchi off-line quality techniques related to loss function, tolerance design and orthogonal experiments; on-line quality control based on variables and attributes. PREREQUISITE: Tech 4462 or permission of instructor.

7404. World-Class Manufacturing. (3). World-class manufacturing concepts and companies that have successfully implemented Just-In-Time, total quality control, and continuous improvement techniques. PREREQUISITE: Tech 4464 or permission of instructor.

7406. Materials Handling Systems. (3). Analysis, design and evaluation of traditional and contemporary approaches to materials handling; analytical and computer procedures for designing handling systems. PREREQUISITE: Permission of instructor.

7408. Production Processes. (3). A coordinated study of manufacturing processes and equipment, operation sequence planning, economic aspects of equipment selection, tooling and processing a product from product design to final assembly for quantity production.

7414. Group Technology and CIM. (3). Applications of Group Technology (GT) and Computer-Integrated Manufacturing (CIM); integrating materials management

and shop-floor-data acquisition and control. PREREQUISITE: TECH 6474 or permission of instructor.

7601. Architectural Graphics. (3). Techniques of contemporary presentation applicable to architectural design with emphasis on advanced perspective and delineation. Computer applications and calibration table will be utilized for the theoretical procedures. Practical problems utilized to develop the creative capacities of mature students.

7801. Precision Measurements. (3). Review of linear and electronics fundamentals; analysis, synthesis, specifications, and applications of electronic test equipment and systems. *Two lecture, three laboratory hours per week.* PREREQUISITE: Permission of instructor.

7811. Technology of Electronic Communication Systems. (3). Engineering and economic aspects in the design and operation of publicly and privately owned communication systems. PREREQUISITE: Permission of instructor.

7821. Advanced Microwave Technology. (3). Microwave theory and equipment applications, including techniques for measuring power, frequency, frequency spectrums, impedance, VSWR, reflection coefficient, circuit Q, noise, and antenna gain. *Two lecture, three laboratory hours per week.* PREREQUISITE: Permission of instructor.

7822. Industrial Process Control Systems. (3). Simulation and pragmatic analysis of closed loop industrial control systems using programmable logic controllers; practical considerations of control loop quality and stability; applications of digital computer for direct and supervisory control and on-line analysis. *Two lecture, three laboratory hours per week.* PREREQUISITE: Permission of instructor.

7831. Advanced Integrated Circuits Technology. (3). Theory and applications of integrated circuits and systems; emphasis on linear integrated circuits. Characteristics, power requirements, and applications to amplifiers, oscillators, demodulators, waveshaping circuits, active filters, converters, and troubleshooting techniques. *Two lecture, three laboratory hours per week.* PREREQUISITE: Permission of instructor.

7991. Projects I. (3). Independent investigation of a problem selected in consultation with instructor; report required.

7992. Projects II. (3). Independent investigation of a problem selected in consultation with instructor; report required.

†7996. Thesis. (1-6). Writing of the thesis with emphasis on adequate setup of the problem, collection of data, their use, and conclusions. Students must present in writing a proposal acceptable to the graduate committee under whose direction the thesis is to be written.

† Grades of S, U, or IP will be given.

INDUSTRIAL AND SYSTEMS ENGINEERING

JOHN W. SMITH, Ph.D.,

Coordinator of Graduate Studies

Room 110-C Engineering Building

I. The Industrial and Systems Engineering program is designed to provide an interdisciplinary area of study emphasizing model building and optimization techniques. This program offers a Master of Science degree with emphasis areas individually designed.

II. M.S. Degree Program**A. Program Admission**

The Herff College of Engineering has established uniform admissions criteria for all graduate programs. Exceptions to these requirements may be addressed by the Graduate Admissions and Retention Committee of the department and must be approved by the Dean.

B. Program Prerequisites

1. a. A bachelor's degree from an ABET accredited four-year program or

b. A bachelor's degree from a non-ABET accredited four-year program plus 18 hours of upper division mathematics and science courses.

c. Test scores as required by the College of Engineering.

2. Three semesters of calculus, one semester of upper division statistics, and one semester of engineering economics or equivalent.

C. Program Requirements

1. Non-thesis option: 33 semester hours with a minimum of 21 hours in the Engineering College and a maximum of 9 hours in a collateral area as defined by the chairman.

2. Thesis option: 30 semester hours with a minimum of 18 hours in the Engineering College and a maximum of 6 hours in a collateral area as defined by the chairman, and 6 hours of thesis credit.

3. INSE 7602, 7603, 7610, and 7615 required for both options.

4. A faculty advisory committee will be appointed for each student entering the program. Students will meet with their committee within the first two weeks of their first semester. The advisory committee will define the student's program including any necessary language or computer communication courses.

D. Retention Policy

All students enrolled in the Industrial and Systems Engineering Program are expected to attain high academic achievement in all courses taken. The criteria listed below will be used to determine retention status.

1. Students having been unconditionally admitted to the graduate program who maintain a cumulative grade point average of 3.00 or high will be considered to be in good standing.

2. Students must maintain a cumulative grade point average of 3.00 in all course work at Memphis State University, in all INSE course work at Memphis State University, and for all 7000 level course work at Memphis State University at the end of each semester of enrollment. Any student not meeting these conditions will be placed on probation.

3. Students admitted with conditions must maintain a 3.00 average at the end of each semester until 9 hours of graduate credit are earned. A student having a cumulative grade point average less than 3.00 at the end of the period described will be dismissed. A student having a cumulative grade point average of 3.00 or above will then be subject to the retention criteria listed in 2 above.

4. Students admitted with program deficiencies must satisfy these deficiencies with a grade of B or better within his/her first semester of grade work or the student will be placed on probation.

5. A student will be permitted two (2) grades of C in graduate courses taken at Memphis State University with no more than one grade of C in INSE courses. A student will be dismissed from the program at the end of the semester in which a third grade of C is earned or the second grade of C is earned in INSE courses.

6. A student who has been dropped from the program will be denied permission to enroll in INSE courses in semesters subsequent to dismissal from the department.

Q831 INDUSTRIAL AND SYSTEMS ENGINEERING (INSE)

7602. Engineering Experimental Design I. (3). Hypothesis test, analysis of variance, simple and multiple linear regression; introduction to ANOVA and statistical packages. PREREQUISITE: INSE 7603 or consent of instructor.

7603. Experimental Analysis. (3). Order statistics, moment-generating-function techniques, point estimation, maximum likelihood estimators, and sampling theory. PREREQUISITE: Consent of instructor.

7604. Engineering Experimental Design II. (3). Applications of statistical methods in noise reducing designs, factorial designs, and fractional factorial designs. BMPD and SPSS emphasized. PREREQUISITE: INSE 7602.

7605. Experimental Analysis II. (3). Applied design and analysis of engineering experiments. ANOVA, regression, and nonparametric statistics with emphasis

placed on the use and interpretation of statistical packages. Projects required. PREREQUISITE: INSE 7603.

7608. Modeling. (3). Principles of problem formulation, verification, and validation; emphasis on recognizing and exploiting applicability of previous course work as it relates to real-world situations. PREREQUISITES: 12 hours in INSE courses.

7610. Operations Research I. Deterministic models in Operations Research. Linear, integer, and dynamic programming; duality, sensitivity analysis, transportation and network models.

7615. Operations Research II. (3). Stochastic models in Operations Research; Markov chains, queueing theory, inventory systems, and discrete simulation.

7620. Network Algorithms. (3). Network and graph algorithms with applications in transportation and communication design; transportation problem, minimum cost flow problem, and tree algorithms. PREREQUISITE: Equivalent of INSE 7610 or consent of instructor.

7630. Forecasting Techniques. (3). Use of forecasting techniques such as moving averages, exponential smoothing, ARIMA, and Box Jenkins models in engineering analysis of alternatives and decision making. Design project and report required. PREREQUISITES: INSE 7602.

7640. Quality Assurance and Reliability. (3). Theory of reliability and quality control. The use of probability models. Data display and reduction, sampling statistics and their distributions. Implementation of quality assurance in industrial production. PREREQUISITE: Consent of instructor.

7650. Application of Sequential Decision Theory. (3). General structure of statistical games; the use of optimal strategies, the invariance principle and sequential decision processes in the solution of industrial problems. Selected applications in queueing theory, fluctuation and renewal theory. PREREQUISITE: INSE 7610, 7620 or consent of instructor.

7660. Systems Simulation. (3). Principles of stochastic simulation methods for input-output analysis of complex systems; use of SIMSCRIPT II.5 simulation languages. PREREQUISITES: 7602, 7603, and consent of instructor.

7680. Advanced Engineering Economics and Decision Theory. (3). Advanced engineering economy and decision making concepts and techniques in analysis of engineering alternatives emphasizing decision making under risk and uncertainty. PREREQUISITES: INSE 7602 or consent of instructor.

7685. Seminar. (1). Presentations by faculty, members of industry, and students; material presented is representative of state-of-the-art work in field; reports may be either based on own work, or readings of appropriate journal articles.

7991. Research in Industrial Systems. (3). Independent investigation of a problem selected in consultation with instructor, report required. Course cannot be repeated regardless of number of hours credit received when course is taken. PREREQUISITE: Consent of instructor.

7992. Research in Industrial Systems II. (3). Independent investigation of problem selected with instructor; report required. PREREQUISITE: Consent of instructor.

†7996. Thesis. (3-6).

†Grades of S, U, or IP will be given.

MECHANICAL ENGINEERING

WILLIAM S. JANNA, Ph.D., *Chair and
Coordinator of Graduate Studies
Room 312, Engineering Building*

I. The department of Mechanical Engineering offers a graduate program leading to the Master of Science degree with a major in Mechanical Engineering. Concentrations are available in design and manufacturing, energy systems, mechanical systems, and power systems.

II. M.S. Degree Program

A. Program Requirements

1. Non-Thesis Option: 33 semester hours with 21 hours in the major area and a minimum of 23 hours in 7000 level courses.

2. Thesis Option: 30 semester hours, with a minimum of 18 hours in the major area; a minimum of 21 hours in 7000 level courses, including, 6 hours in a collateral area, and 6 hours of thesis credit.

3. Transfer credit is limited to 6 credit hours.

4. Course Load Maximums:

Full-time student: 15 credit hours per semester

Full-time conditional student: 9 credit hours per semester

Graduate assistants: 9 credit hours per semester
Graduate assistantships are available; applications should be made to the chair of Mechanical Engineering.

5. Students selecting the thesis option will be required to complete an independent research project culminating in a master's thesis. Upon completion of the thesis, the student must successfully pass an oral examination to assess mastery of the thesis topic and to evaluate the student's knowledge in mechanical engineering. Success in the oral examination requires approval by an affirmative vote of a majority of the candidate's committee.

6. Students electing the non-thesis option will be required to pass a written and an oral Mechanical Engineering Master of Science comprehensive examination during the final semester of study. In addition, the student will be required to complete an independent research project culminating in a written and an oral report.

7. Students who wish to take mechanical engineering courses must have prior consultation and approval by the Coordinator of Graduate Studies or by an advisory committee in the Mechanical Engineering Department.

B. Retention Policy

1. Students who have been admitted to the program on a conditional basis must satisfy all requirements of their conditional admission by the end of the first term of enrollment.

2. A student will be permitted two (2) grades of C or lower in courses approved for the degree. A student will be dismissed at the end of the semester in which a third grade of C or lower is earned.

III. Ph.D. Degree Program

See the beginning of this College section for admission, retention, and graduation requirements.

Q870 MECHANICAL ENGINEERING (MECH)

6309. Gas Dynamics. (3). Concepts in compressible flow; emphasis on real and ideal gas dynamic effects and non-equilibrium flow; application of numerical methods.

6313. Heat Transfer II. (4). Principles of boiling, condensing, and radiation heat transfer. Fundamentals of heat exchanger design.

6315. Heating, Ventilation and Air Conditioning. (3). Psychometric analyses, heating and cooling loads of buildings, and analyses of air conditioning systems.

6324. Computer-Aided Design. (3). Use of digital computer in design of mechanical components and systems. Design project assignments. PREREQUISITE: MECH 3323.

6325. Advanced Mechanics of Materials. (3). Biaxial stresses, torsion, unsymmetrical bending of beams, shear centers, contact stresses, failure theory, and other selected topics.

6326. Biomedical Systems Analysis-Mechanical. (3). (Same as BIOM 6326). Introduction to concepts used in analyzing living systems. Simulation of body functions with mechanical and computer models. Familiarization with the design of mechanical bio-engineering devices such as heart valves, heart-lung machines, renal analysis machines.

6330. Introduction to Composite Materials. (3). Introduction to fiber reinforced composite materials; mechanical behavior, strength, design methodology,

and implementation of computer aided design. PREREQUISITES: MECH 3320, MECH 3322.

6333. Aerospace Propulsion Systems. (3). Fundamentals of airbreathing and rocket propulsion devices. Principles of combustion thermodynamics, gas turbine operation, solid and liquid propellants, performance evaluation, and atmospheric and space mission propulsion requirements.

6337. Internal Combustion Engines. (3). Principles of Otto, Diesel and Brayton cycle engines. Effects of various fuels and fuel delivery systems, air induction systems, ignition systems, and pollution control techniques on engine performance.

6340. Manufacturing Processes. (3). Fundamentals of mechanical behavior of materials, manufacturing properties of materials; casting, bulk deformation, sheet-metal forming; material removal processes; processing of polymers, ceramics and glasses composite materials; powder metallurgy; fastening and joining processes; nontraditional manufacturing processes; economics of integrated design and manufacturing processes; economics of integrated design and manufacturing. PREREQUISITES: MECH 3320, 3322.

6345. Design of Mechanisms. (3). Graphical and analytical mechanism synthesis techniques for path generation, function generation, rigid body guidance and optimization of force transmission characteristics.

6346. Advanced Mechanical Controls. (4). Advanced modeling of mechanical control systems, design of mechanical control systems, stability, Nyquist diagrams, Bode plots, nonlinear system analyses.

6350. Mechanics for Biomedical Engineers. (4). (Same as BIOM 6350). (7308). Analyses of bone and joint structure of the body related to basic mechanical equations and properties. Mathematical modeling of bone structure, mechanical properties, static loading, dynamic loading, fatigue, wear, corrosion.

6356. Fundamentals of Rehabilitation Engineering. (3). (Same as BIOM 6356). Concepts of rehabilitation engineering and roles of rehabilitation engineer. Introduction to various mobility and communication aids for physically handicapped persons.

6371. Mechanical Vibrations. (3). Kinematics of harmonic and non-harmonic vibrations; systems of one and several degrees of freedom, free and forced vibrations; self-excited vibration.

7115. Plate and Shell Structures. (3). (Same as CIVL 7115). Analysis of rectangular and circular flat plates; large deflections of plates; variational methods; analysis of shells as surfaces of revolution under symmetric and unsymmetric loading.

7302. Theory of Continuous Media. (3). Analysis of stress and deformation at a point; derivation of the fundamental equations in Cartesian tensor notation by application of the basic laws of conservation of mass, energy, and momentum in mechanics and thermodynamics.

7303. Advanced Dynamics. (3). Three dimensional dynamics of particles and rigid bodies; generalized coordinates and forces; Lagrangian equations of motion; Hamilton-Jacobi analysis and gyroscopic motion; Celestial mechanics and spacecraft dynamics. PREREQUISITE: Approval of instructor.

7305. Inviscid Flow Theory. (3). General equations of fluid mechanics; equations of two-dimensional inviscid flow; stream function and velocity potential definitions; irrotational flow; Laplace's equation in various flow fields and geometries; combined flows and superposition. PREREQUISITE: MECH 3331 and MATH 4391 or approval of instructor.

7306. Viscous Fluid Flow. (3). Laminar flow of Newtonian fluids; boundary layer theory; turbulent flow modeling techniques; internal and external flow applications. PREREQUISITES: MECH 3331 and Math 4391 or approval of instructor.

7323. Conduction Heat Transfer. (3). Fundamentals of steady-state and transient heat conduction; applications of Fourier series, Laplace transforms, finite differences and finite elements to conduction problems.

7324. Radiation Heat Transfer. (3). Fundamentals of radiation properties of surfaces and radiation exchange between surfaces; black, gray, and non-gray surfaces; integral and numerical techniques employed in radiation problems.

7325. Convection Heat Transfer. (3). Fundamentals of free and forced convection heat transfer using differential and integral formulation of laminar and turbulent boundary layers for flow over internal and external surfaces; influence of temperature-dependent properties; convective heat transfer at high velocities.

7331. Advanced Thermodynamics. (3). Areas of study include equations of state, aircraft and missile propulsion, refrigeration and heat pump cycles, cryogenics, criteria for thermodynamic equilibrium, binary mixtures, and chemical reactions.

7335. Statistical Thermodynamics. (3). Development of fundamental principles of statistical mechanics, quantum mechanics, and kinetic theory. Irreversible phenomena as they relate to thermodynamic processes and systems; conclusions of classical thermodynamics established from microscopic viewpoint.

7341. Engineering Analysis. (3). (Same as BIOM 7341). Analysis of engineering systems using closed form solutions; application of Laplace Transforms by heaviside transformations, ordinary and partial differential equations of the first and second order, vector and tensor algebra, Bessel functions, Fourier integrals and other selected topics.

7351. Advanced Computer-Aided Design. (3). Selected subjects in mechanical system design using computer graphic techniques and mathematical modeling for computer simulation. Concept and theory of design optimization. Design project assignments. PREREQUISITE: Consent of instructor.

7352. Fluid Mechanics for Biomedical Engineers. (3). (Same as BIOM 7352). (6352). Elements of hydrodynamics, cardiovascular system, flow of fluids in tubes with elastic walls, pulsatile blood flow, vascular walls, flow through arterial walls, models of the circulation and pulse waves system.

7354. Heat and Mass Transfer for Biomedical Engineers. (3). (Same as BIOM 7354). (6354). Heat transfer, mass transfer, and Heat-mass conversion in biological systems. First and second laws of thermodynamics applied to biological systems.

7361. Mechanical Behavior of Materials. (3). Performance of materials at elevated temperatures; statistical aspect of brittle fracture; advanced treatment of fatigue failure; linear elastic fracture mechanics; friction and wear; ductile failure; strengthening mechanisms; embrittlement modes; case studies in materials selection.

7365. Corrosion. (3). Fundamental causes and mechanisms; corrosion control; study of specific corrosion problems.

7371. Advanced Mechanical Vibrations. (3). Lagrange's and Hamilton's principles in the study of vibrating systems. Methods of solution for the equations of motion will be presented, including digital computer techniques.

7374. Theory of Elasticity. (3). Classical theory using tensor notation; analysis of stress, strain, constitutive relationship; equations of compatibility; variational methods; methods of solution; applications. PREREQUISITE: MECH 7302.

7378. Computational Fluid Dynamics. (3). Introduction to computational fluid mechanics and heat transfer; finite difference and finite element methods, stability considerations, turbulence modeling, and special algorithm development. PREREQUISITES: MATH 4391, MECH 7305 or approval of instructor.

7381. Finite Element Methods. (3). General principles and modeling of engineering systems using the finite element method; applications in fracture mechanics, hydrodynamics, and thermal conduction. PREREQUISITE: Approval of instructor.

7901-7909. Special Topics in Mechanical Engineering. (1-3). Topics are varied and announced in the *Schedule of Classes*.

7991. Projects I. (1-3). Independent investigation of a problem selected in consultation with instructor; report required.

7992. Projects II. (1-3). Independent investigation of a problem selected in consultation with instructor; report required.

†7996. Thesis. (1, 3, or 6).

9000. Dissertation. (1-12).

† Grades of S, U, or IP will be given.

INDEPENDENT DEPARTMENTS

AUDIOLOGY AND SPEECH PATHOLOGY

MAURICE I. MENDEL, Ph.D., *Chair*

DAVID J. WARK, Ph.D., *Coordinator of Graduate Studies*

*Speech and Hearing Center
807 Jefferson*

I. The Department of Audiology and Speech Pathology offers graduate programs leading to the M.A. and Ph.D. degrees with a major in Audiology and Speech Pathology. Concentrations are available in Audiology and Speech Pathology. The Department has Educational Services Board and Professional Services Board

accreditation from the American Speech -Language -Hearing Association.

II. M.A.Degree Program

A. Program Admission

Students should have a GPA of 3.0 (on a 4 point system), a GRE score of 900, or an MAT score of 40 for admission. Students with grades or scores below these minimums will be reviewed by the Departmental Admissions Committee.

B. General Program Requirements

Students must complete a minimum of 47 credit hours and meet the academic and practicum requirements for the Certificate of Clinical Competence of the American-Speech-Language-Hearing Association.

1. 36 semester hours of graduate work exclusive of thesis, special project, and clinical practicum with 24-30 semester hours in the major area.

2. Completion of two hours of clinical practicum (AUSP 7104 for Audiology majors and AUSP 7208 for Speech

Pathology majors) in each semester of full-time graduate study. Students must complete a minimum of six semester hours of clinical practicum with a grade of "B" or above and must obtain a "B" or above in their last two semesters. Maximum of 8 credit hours of AUSP 7104/7208 may be counted toward 47 hour requirement.

3. A thesis or non-thesis option is available. Students choosing the non-thesis option must take AUSP 7990 (Special Project) and complete written comprehensive examinations.

C. Specific Program Requirements

Audiology

1. Prerequisite Requirements (18 hours)

Introduction to Audiology (3); Communication Sciences: Language and Speech Development (3), Other (3); Speech Pathology: Language Disorders in Children (3), Other (3); Related Coursework (3)

2. Department Requirements (47-50 hours)**a. Audiology (38-40 hours)**

- AUSP 7001 Hearing Science
- AUSP 7004 Anatomy and Physiology of the Hearing Mechanism
- AUSP 7012 Measurement Techniques
- AUSP 7101 Audiological Concepts
- AUSP 7103 Differential Audiology I
- AUSP 7104 Clinical Practicum (8-10 hours)
- AUSP 7105 Differential Audiology II
- AUSP 7113 Hearing Conservation
- AUSP 7114 Introduction to Hearing Aid
- AUSP 7115 Evaluation/Management Hearing Impaired Children
- AUSP 7116 Hearing Aid Selection
- AUSP 7124 Management of Hearing Impaired Adults

b. Elective (3 hours)**c. Supplemental Coursework (6 hours)**

- AUSP 7005 Introduction to Graduate Study
- AUSP 7990 Special Project Or
- AUSP 7996 Thesis

d. Proficiency in Manual Communication (1 hour)**Speech Pathology****1. Basic Communication Processes (ASHA: 15 hours; MSU: 6 hours - AUSP 7006 and 7007)**

- AUSP 7000 Introduction to Speech and Hearing Science
- AUSP 7002 Seminar in Speech and Hearing Science
- AUSP 7003 Anatomy and Physiology of the Speech Mechanism
- AUSP 7006 Language and Speech Development
- AUSP 7007 Communicative Interaction
- AUSP 7008 Acoustic Phonetics
- AUSP 7009 Language Processing of Adults
- AUSP 7010 Neurological Bases of Communication

2. Research Methods and Experience (6 hours)

- AUSP 7005 Introduction to Graduate Study
- AUSP 7990 Special Project Or
- AUSP 7996 Thesis

3. Diagnostics (3 hours - ASHA requirement)

- AUSP 7207 Speech and Language Assessment

4. Speech Disorders (6 hours)

- AUSP 7201 Cleft Palate
- AUSP 7202 Cerebral Palsy
- AUSP 7203 Voice Disorders
- AUSP 7204 Phonological Disorders
- AUSP 7205 Stuttering
- AUSP 7206 Motor Speech Disorders in Adults
- AUSP 7210 Seminar in Stuttering
- AUSP 7306 Speech Rehabilitation for Head/Neck Pathologies

5. Language Disorders (6 hours)

- AUSP 7300 Language Disorders in Children
- AUSP 7302 Aphasia I
- AUSP 7303 Aphasia II
- AUSP 7304 Seminar in Language Disorders

6. Other (3 hours)

- AUSP 7210 Seminar in Speech Pathology
- AUSP 7305 Learning Disabilities
- AUSP 7403 Intervention with Parents/Families
- AUSP 7404 Communication Centered Therapy

7. Audiology (6 hours)

- AUSP 7117 Individual Study in Audiology for Speech Pathologists
- AUSP 7122 Aural Rehabilitation

8. Clinical Practicum (6-8 hours)

- AUSP 7208 Clinical Experiences in Speech and Language Disorders

III. Teacher Certification Requirements*

In addition to the requirements listed in Section II.C. for Speech Pathology, students must complete the following 23 hours or the equivalent for Teacher Certification.

A. Core Professional Requirements 11 hours from the following courses or equivalent. No less than 6 hours must be in the psychological foundations of education.

- EDUC 2600 Human Development and Learning Theory (3)
- EDPS 7121 Learning Theories Applied to Education (3)
- SPER 7000 Psycho-Educational Problems of Exceptional Children and Adults (3)
- EDUC 4601 Education Foundations for Teachers (2)

B. Specialized Professional Requirements (12 hours)

- AUSP 7207 Speech and Language Assessment (3)
- SCED 4342 Teaching Reading in Secondary Content Areas (2)
- EDUC Interpersonal Skills for Educators (2) or
- AUSP 7007 Communicative Interaction (3)

AUSP 7208 Clinical Experience in Speech and Language (5). This course must be taken at least 3 full semesters. Progressive levels of competence and independence are expected.

*For persons who obtained a master's degree in Audiology and Speech Pathology from Memphis State University between 1970 and 1986, the requirements listed in II.C. above will be considered as having been met.

IV. Ph.D. Degree Program**A. Program Admission**

Students must have a GPA of 3.5 (on a 4 point system), a GRE score of 1000, and three letters of recommendation. All applicants are reviewed by the Departmental Admissions Committee.

Exceptions to the above requirements will be taken under advisement by the Review Committee.

B. Program Requirements

1. Advisers. The Chair of the Department will serve as adviser for purposes of orientation and first semester registration. Within the first eight weeks, an adviser will be assigned to each doctoral student by the Department Chair in consultation with the student. This adviser will serve as the chair of the student's Planning Committee. The adviser shall be a member of the Graduate Faculty of Memphis State University.

2. Planning Committee. The Planning Committee's charge is to evaluate the student's academic and clinical needs and assist in the planning of the doctoral student's academic program. The Committee, all of whom must be members of the Graduate Faculty, shall number no less than three, at least two of which will be from the major area of the student's program. In addition, a faculty member from a proposed collateral area will be consulted concerning the appropriateness of the proposed collateral area courses. The student, in conjunction with the Committee, will develop a final academic plan to be in written form and filed in the Chair's office. The plan must be filed no later than the middle of the second semester. The Committee also will recommend to the Graduate School those courses, if any, to be transferred to apply toward the Ph.D., provided that the credit meets general university requirements. This plan is to be signed by each member of the Committee and the doctoral student. The student or a Planning Committee member may propose changes after the plan has been filed. However, any resulting change in the student's plan will require written approval of the Committee and the doctoral student.

3. Credit Hour Requirements. Requirements for the doctoral degree shall not be less than 63 semester hours beyond the master's degree. Only graduate level courses may be counted as part of the 63 semester hours. Thirty-six hours shall be taken within the Department of Audiology and Speech Pathology of which a maximum of nine hours of Independent Projects plus Independent Readings, and a maximum of nine hours of Dissertation may be counted. The student may take additional Independent Projects and Reading hours, although these will not be counted toward the 36 hours.

Students will be required to complete nine semester hours of work in order to satisfy research tool requirements. Courses that may satisfy such requirements include those in statistics, research design, and computer programming.

Eighteen semester hours will be required from collateral areas. A collateral area is defined as a network of courses based on substantive commonality which may involve work in more than one academic department. A minimum of two collateral areas must be represented in the student's academic plan. At least nine semester hours of the student's collateral work must be taken in departments outside of Audiology and Speech Pathology. Semester hours applying to collateral areas that are taken in the Department of Audiology and Speech Pathology shall not be counted toward the 36 hours contributing to the student's major area.

4. Doctoral Experience Requirements. It is expected that doctoral students either will have completed a Master's thesis prior to entering the doctoral program or will complete an equivalent during the first year of doctoral study. All degree-seeking students will maintain 16-20 hours per week of teaching, research, and/or clinical service responsibilities as part of their training. Those students wishing to pursue the Certificate of Clinical Competence shall devote 18-20 hours per week to clinical activities for an eighteen month period, as per the guidelines of the American Speech - Language - Hearing Association.

5. Qualifying Committee. The Qualifying Committee will consist of members selected by the student in conjunction with the adviser. The Committee will consist of at least three members. However, the composition of the Committee will be such that the student's major area and both collateral areas will be represented. At least two members must be from the student's major area and one member, representing a collateral area, must be from a department other than Audiology and Speech Pathology.

6. Qualifying Examination. The qualifying examination will consist of a written and oral examination. The written examination will entail 24-28 hours of writing, within a two-week period. The examination will cover the student's major area and both collateral areas. The student may be asked questions calling for direct application of statistics and research design. The Qualifying Committee will determine the readiness of the student for the oral examination, the date of which shall be established within three weeks after the written examination. Prior to the oral examination, the student will meet with individual Committee members concerning the nature of the oral examination. The

oral examination will entail further coverage of the areas represented in the student's written examination.

The qualifying examination may be taken upon completion of the doctoral student's academic plan or within the last semester of completing his or her academic requirements. This examination will be administered any time within the specified semester subject to the discretion of the Qualifying Committee. The student's status relative to the qualifying examination shall be determined by the Committee after the oral examination. This determination will be based on a Committee vote. No more than one dissenting vote may be cast for a student to pass. The Committee has the authority to specify further stipulations aimed at remedying any deficiencies reflected in the student's qualifying examination. The Committee Chair shall file in the Department Chair's office a decision in writing concerning the student's qualifying examination within two weeks after the oral examination.

7. Candidacy. After completion of all academic requirements and successful completion of the qualifying examination, a doctoral student may apply for candidacy.

8. Dissertation Committee. The Dissertation Committee will consist of a minimum of four faculty members selected by the student. At least two members must be from the student's major area and at least one member must be from a department other than Audiology and Speech Pathology. The Chair of the Dissertation Committee must be from the student's major area and must be a full member of the Graduate Faculty.

9. Dissertation. The student will develop a prospectus in conjunction with the Dissertation Committee Chair. The prospectus will be reviewed by the Committee and, if approved, the student will conduct the work set forth in the prospectus. The completed dissertation will be defended by the student. The oral defense will be open to the University community, with voting on the acceptability of the defense restricted to Dissertation Committee members. An affirmative decision will be rendered if no more than one dissenting vote from the Committee is cast. The Chair of the Dissertation Committee must cast an affirmative vote. An announcement of the scheduled defense must be sent to the Dean of the Graduate School one month prior to the scheduled date. After successful defense, any required revision, retyping, and resubmission of the dissertation to the Committee Chair must be completed prior to the awarding of the degree.

V915 AUDIOLOGY AND SPEECH PATHOLOGY (AUSP) BASIC SCIENCE AREA

7000. Introduction to Speech and Hearing Science.

(3). General areas of speech and hearing science and the following areas of study: acoustics, speech acoustics, acoustic analysis, acoustic phonetics, physiological acoustics, experimental phonetics, hearing physiology, speech reception, intelligibility, and perception.

7001-8001. Hearing Science. (3). Basic acoustics, psychoacoustics and physiological acoustics. **PREREQUISITE:** 7100 or permission of instructor.

7002-8002. Seminar in Speech and Hearing Science. (3). For upper level masters and all doctoral students. Topics include: acoustic phonetics, physiological phonetics, voice science and hearing science. For topic to be offered see the *Schedule of Classes*. **PREREQUISITE:** 7000 or 7001 or permission of instructor.

7003-8003. Anatomy and Physiology of the Speech Mechanism. (3). Structure and function of bodily organs related to the processes of speech production.

7004-8004. Anatomy and Physiology of the Hearing Mechanism. (3). Structure and function of bodily organs related to the processes of hearing.

7005. Introduction to Graduate Study. (3). Introduction to research applicable to Speech Pathology and Audiology and theories of measurement, including statistical and behavior designs, reliability and judgments, and replicability.

7006-8006. Language and Speech Development. (3). Normal acquisition and maintenance of speech and language, theoretical formulations about language and speech behavior, and approaches to its study. Students observe and describe the language of children of various ages whose development is within normal range.

7007-8007. Communicative Interaction. (3). Concepts and processes fundamental to communicative interaction. Emphasis on application of such concepts and processes to the student's own communicative interactions.

7008-8008. Acoustic Phonetics. (3). Acoustic theory of speech production and techniques of acoustic analysis; acoustic structure of vowels and consonants as well as prosodic features; and speech synthesis and speech perception. Discussions and demonstrations of

basic instrumentation used to measure speech parameters. PREREQUISITE: 7000 or permission of instructor.

7009-8009. Language Processing of Adults. (3). Normal adult language behavior with emphasis upon processes required for communicative comprehension and expression. Special consideration to the influence of aging on these processes.

7010-8010. Neurological Bases of Communication. (3). Review of the neuroanatomy of the central and peripheral nervous systems and the physiology of nerves and muscles. Attention on cortical and subcortical structures and on neuropsychological processes which are attributed to speech and/or language functions.

7011-8011. Psycholinguistics. (3). Structure of language and processes involved in speaking and listening.

7012-8012. Measurement Techniques. (3). Principles and techniques involved in measurement procedures frequently encountered in the practice of Audiology. Major focus will be on the topics of calibration, measurement of environmental noise, and measurement of electroacoustic characteristics of hearing aids. Laboratory experience is provided. PREREQUISITE: 7001 and 7101 or permission of instructor.

7013-8013. Psychoacoustics. (3). Modern theoretical and applied research concerning the psychological responses to acoustic stimuli.

7017-8017. Microcomputers in Speech and Hearing Science. (3). Number systems; programming concepts; interfacing components; analog-digital and digital-analog conversions; digital processing of speech and other signals; and computer hardware systems and peripherals with particular application in speech and hearing research. For doctoral and upper level master's students.

7018-8018. Administrative Issues in Professional Practice. (3). Consideration of legal, ethical, financial, and personnel management issues associated with administration of clinical programs in Speech and Hearing. Special emphasis given to private practice setting. Students required to complete project.

7019. Phonetic Transcription. (1). Broad and narrow transcription techniques and opportunities for transcription practice with normal and disordered populations.

8015. Instrumentation. (3). The measurement and calibration of instrumentation typically used in speech and hearing science along with a discussion of pertinent electroacoustic principles.

AUDIOLOGY

6100. Introduction to American Sign Language. (2). Introduction to structure of American Sign Language; manual alphabet and basic vocabulary; practical applications including communication with deaf individuals and signing in the performing arts.

7101-8101. Audiological Concepts. (3). Investigation of basic audiological concepts and their applicability to clinical procedures. Topics include: masking, bone conduction, speech reception and speech discrimination. PREREQUISITE: 7100 or permission of instructor.

7103-8103. Differential Audiology. (3). Consideration of special auditory tests involved in the differential diagnosis of peripheral hearing problems. PREREQUISITE: 7100 or permission of instructor.

7104-8104. Clinical Experience in Audiology. (2). Supervised clinical experience in the evaluation and/or management of clients with hearing impairments. Designed to meet student's individual needs.

7105-8105. Advanced Differential Audiology. (3). Consideration of special auditory tests and electrophysiological techniques in the differential diagnosis of nonorganic, peripheral, and central hearing disorders. PREREQUISITE: 7100 or permission of instructor.

7112-8112. Seminar in Audiology. (3). Detailed study of selected topics in audiology. With different content, may be repeated for up to 12 hours at the 8000 level. PREREQUISITE: Permission.

7113-8113. Hearing Conservation. (3). Requirements of audiology in the management, control, evaluation, and conversation of hearing problems in industry and the military. PREREQUISITE: 7100 or permission of instructor.

7114-8114. Introduction to Hearing Aids. (3). Performance and measurement of wearable hearing aids; characteristics of hearing aids, standard and non-standard hearing aid performance measurements, earmold acoustics, laboratory exercises. PREREQUISITE: 7101 or permission of instructor.

7115-8115. Evaluation and Management of Hearing-Impaired Children. (3). Audiologic procedures dealing with the assessment and rehabilitation of pediatric, geriatric and multiple handicapped population. PREREQUISITE: 7100 or permission of instructor.

7116-8116. Hearing Aid Selection. (3). Traditional and contemporary methods of hearing aid selection and evaluation; behavioral and objective procedures for children and adults. Laboratory exercises required. PREREQUISITE: 7114 or permission of instructor.

7117-8117. Individual Study in Audiology for Speech Pathologists. (3). Topics include physics of sound, hearing loss, basic audiometric testing and hearing conservation.

7122-8122. Aural Rehabilitation. (3). Introduction to and analysis of principles and techniques used for children and adults with impaired hearing to develop listening and visual skills and to utilize residual hearing. PREREQUISITE: 7100.

7123-8123. Manual Communication I. (1). History and comparison of various sign language systems such as Signed English, Ameslan, and Seeing Essential English, and training in the use of manual communication.

7126-8126. Management of Hearing-Impaired Adults. (3). Adult aural rehabilitation; profiles of adult hearing-impaired populations, the assessment of hearing handicap, remediation methodologies, and impact of federal and state legislation on adult hearing-impaired.

7700. Individual Readings in Audiology. (3). Independent study in literature in an area of audiology. May be repeated as often as desired.

7990. Special Projects. (3). Individual needs of students who wish to explore an area with faculty guidance. Students may pursue a pilot study. May be taken twice. PREREQUISITE: Permission of individual faculty member be involved.

†7996. Thesis. (1-3). Academic credit for thesis may be taken for a maximum of 6 hours and a minimum of 3 hours degree credit. Only 3 credits may be applied toward degree requirements for the master's degree.

8100. Individual Readings in Audiology. (3). Independent study of literature in an area of audiology. May be repeated as often as desired.

8121. Individual Projects in Audiology. (3). Students pursue individual research projects under the direction of a member of the graduate faculty in audiology. May be repeated as often as desired.

8124. Clinical Supervision in Audiology. (1). Processes involved in supervision of student clinicians in diagnostic audiology and/or aural rehabilitation. Experience in supervision of M.A. level student clinicians is provided.

†9000. Dissertation. (1-6). Academic credit for dissertation may be taken for a maximum of 12 hours and a minimum of 1 hour credit. Only 9 credits may be applied toward degree requirements for the Ph.D. degree.

SPEECH AND LANGUAGE PATHOLOGY

6200. Introduction to Communication Disorders. (3). Communication disorders with special reference to those encountered by educators and others in the population 0-21. Observation and discussion of classroom management, roles of various specialists, and parent conferencing.

7201-8201. Cleft Palate Habilitation. (3). Cleft palate speech with emphasis on articulatory, resonance, and phonatory aspects as well as medical and habilitative and rehabilitative principles. PREREQUISITE: 7003 and 7200 or permission of instructor.

7202-8202. Cerebral Palsy. (3). Cerebral palsy as developmental neuromotor disorder; etiologies, classifications, clinical neurology and associated medical problems. Effects of this condition on peripheral speech mechanism reviewed and contemporary approaches to diagnosis and therapy presented. PREREQUISITES: 7003 and 7200 or permission of instructor.

7203-8203. Voice Disorders. (3). In depth review of voice disorders by patterns of deviation, etiology, and techniques of intervention. Opportunity for original papers and/or projects.

7204-8204. Phonological Disorders. (3). Current research in phonology, including assessment, prediction, and remediation procedures.

7205-8205. Stuttering. (3). Review, evaluation, and synthesis of information regarding the definition of stuttering, theories of etiology, symptomatology, therapy approaches, and methods of research.

7206-8206. Motor Speech Disorders in Adults. (3). Diagnostic and management considerations regarding the dysarthrias and apraxia of speech.

7207-8207. Speech and Language Assessment. (3). Principles and procedures for assessing and diagnosing speech and language disorders.

7208-8208. Clinical Experience in Speech and Language Disorders. (2). Supervised clinical practice with clients. Designed to meet student's individual needs.

7210-8210. Seminar in Speech Pathology. (3). Selected areas of speech or language disorders. With different content may be repeated for up to 6 hours at the 7000 level or for up to 12 hours at the 8000 level.

7300-8300. Language Disorders in Children. (3). The linguistic and neurological aspect of behavior relative to disorders of language in children. In depth review of etiology, assessment and treatment. PREREQUISITE: 7006 or of instructor.

7302-8302. Aphasia I. (3). Clinical characteristics of aphasia in adults with emphasis on differential diagnosis and treatment.

7303-8303. Aphasia II. (3). Historical aspects, theory, and experimentation in aphasiology. PREREQUISITE: Aphasia I.

7304-8304. Seminar in Language Disorders. (3). Current experimental and clinical research of disorders of language. PREREQUISITE: Permission.

7305-8305. Learning Disabilities. (3). Critical study of the dysfunctions in the analysis and synthesis of sensory information including auditory, visual and haptic processing. Disturbances in symbolic operations are also discussed. Research, assessment and treatment of language and perceptual disorders with special application to the speech pathologist.

7306-8306. Speech Rehabilitation for Head/Neck Pathologies. (3). Etiology, disordered anatomy, and physiology resulting from cancer of head and neck; ways in which cancer, surgery, and other medical treatments affect speech and voice functioning and swallowing; diagnostic and treatment approaches.

7403-8403. Intervention with Parents and Families of the Communicatively Impaired. (3). Review and discussion of literature regarding parents and families of persons with communication impairments. Supervised practicum experiences with such parents and other family members are required.

7404-8404. Communication Centered Therapy. (3). Investigation of theoretical bases of a communication-centered approach to speech and language therapy and its clinical application. Readings and experience will include use of conversation units in speech and language activities, communicative play, and role playing.

7800. Individual Readings in Speech Pathology. (3). Independent study of literature in an area of speech pathology. May be repeated as often as desired.

7990. Special Projects. (3). Students study a specific area under faculty guidance. May be taken twice. PREREQUISITE: Permission of individual faculty members to be involved.

†7996. Thesis. (1-3). Academic credit for thesis may be taken for a maximum of 6 hours and a minimum of 3 hours credit. Only 3 hours of credit may be applied toward degree requirements for the master's degree.

8200. Individual Readings in Speech Pathology. (3). Independent study of literature in an area of speech pathology. May be repeated as often as desired.

8221. Individual Projects in Speech Pathology. (3). Students pursue individual research projects under the direction of a member of the graduate faculty in speech pathology. May be repeated as often as desired.

8228. Clinical Supervision in Speech Language Pathology. (1). Processes involved in supervision of study clinicians in speech and language assessment and therapy. Experiences in supervision of M.A. level student clinicians provided.

†9000. **Dissertation.** (1-6). Academic credit for dissertation may be taken for a maximum of 12 hours and a minimum of 1 hours credit. Only 9 hours may be applied toward degree requirements for the Ph.D. degree.

† *Grades of S, U, or IP will be given.*

INDIVIDUAL STUDIES

I. The program for a Master of Arts or a Master of Science degree with a major in Individual Studies is administered by the Graduate School designed to serve those students who have a specific educational goal and who wish to organize a program of existing courses

with a concentration area, theme, or special emphasis which is not found among current majors. Individual Studies students must complete a thesis or performance project or other integrative activity.

II. Degree Program

A. Admission Procedure

1. The student must be fully admitted to the Graduate School. Admission to degree candidacy is contingent upon approval of the student's program committee.

2. Graduate conditional students or non-degree students are not eligible for this program.

3. Students who desire to participate in the program may not apply more than nine (9) hours of graduate work undertaken before admission to the program.

Any exceptions must be made by the Graduate Review Committee.

B. Degree Plan

1. Students must formalize a statement of personal and/or professional goals which will serve as the basis for the design of their programs. This statement and

a formal degree plan must be placed on file in the office of the Graduate School.

2. In order for the degree plan to qualify as an Individual Studies major, it must differ significantly from the requirements for an existing major.

3. The degree plan must contain a minimum of 33 semester hours, of which at least 18 must be at the 7000 level or above. A thesis, performance project, or other integrative activity must be included.

4. The degree plan must be approved by the Individual Studies Committee.

5. Students will be required to pass a comprehensive examination if a thesis is not written.

C. Program Committee

The student's program committee will be composed of three graduate or associate graduate faculty members approved by the Graduate Dean. The committee will assist the student in developing the degree plan, serve in an advising capacity for the student, and conduct the comprehensive examination or the defense of thesis.

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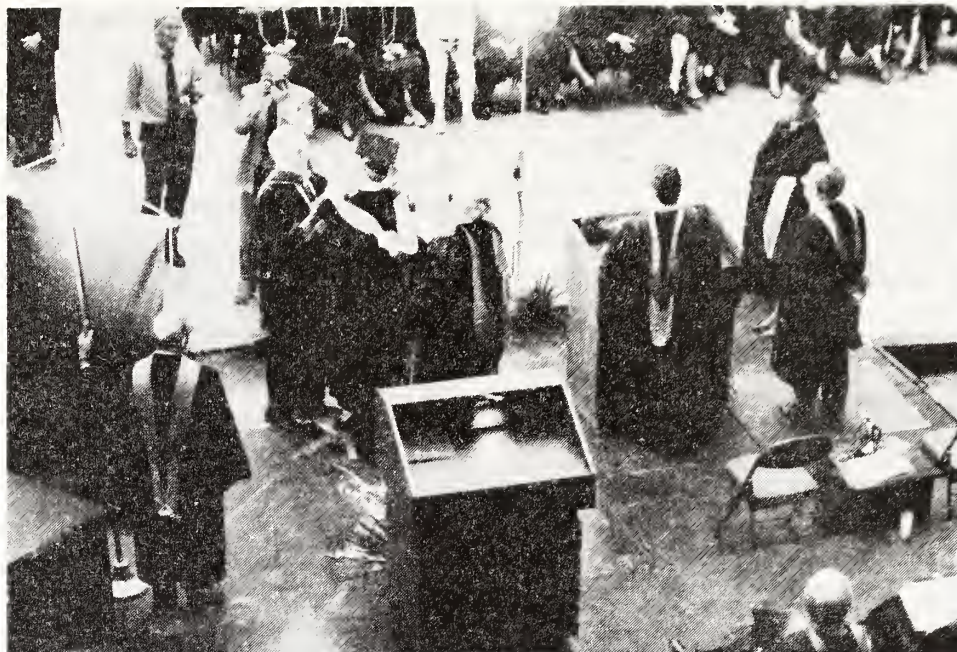
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Ed.D. (1978), University of Mississippi [1994].

MICHAEL HUFFMAN, *Assistant Professor*
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MELVIN A. HUMPHREYS, *Professor*
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ADJUNCT MEMBERS

GORDON J. KRAUS
M.D. (1980), University of Tennessee Center for the Health Sciences [1991].

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HOME ECONOMICS

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M.P.H. (1980), Tulane University [1990].

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ADJUNCT MEMBERS

SERGIO R. ACCHIARDO
M.D. (1959), University of Chili School of Medicine [1992].

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Ph.D. (1975), Iowa State University [1992].

MARY WALLACE CROCKER
Ph.D. (1968), Florida State University [1990].

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M.S. (1976), Miami University [1992].

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B.S. (1960), Tuskegee Institute [1992].

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Ph.D. (1952), Duke University; M.D. (1959), Vanderbilt University [1993].

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B.S. (1975), Harding University [1992].

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M.D. (1953), University of Tennessee [1992].

JUDITH ANN POWELL
M.P.H. (1973), University of North Carolina [1993].

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Ph.D. (1972), Purdue University [1992].

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ELAINE WILLEY
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SPECIAL EDUCATION

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ASSOCIATE MEMBER

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M.D. (1947), Yale Medical School [1993].

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CIVIL ENGINEERING

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Graduate Studies*

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Ph.D. (1972), Vanderbilt University [1994].

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Ph.D. (1959), University of Illinois [1996].

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Ph.D. (1983), Mississippi State University [1993].

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Ph.D. (1968), University of Missouri at Rolla [1994].

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Ph.D. (1987), Oklahoma State University [1995].

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Ph.D. (1986), University of Michigan [1995].

SHAHRAM PEZESHK, *Assistant Professor*
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WILLIAM T. SEGUI, *Associate Professor*
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CARL WILBURN
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ELECTRICAL ENGINEERING

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MEMBERS

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Ph.D. (1969), University of Tennessee [1994].
FRANK J. CLAYDON, *Assistant Professor*
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Ph.D. (1973), University of Rochester [1994].
CARL EDWIN HALFORD, *Professor*
Ph.D. (1970), University of Arkansas [1994].
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Ph.D. (1967), University of Connecticut [1994].
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ASSOCIATE MEMBERS

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Ph.D. (1984), University of Michigan - Ann Arbor [1994].
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Ph.D. (1979), University of Illinois [1994].

ADJUNCT MEMBERS

GLENN D. BOREMAN
Ph.D. (1984), University of Arizona [1992].
DAVID M. MIRVIS
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ENGINEERING TECHNOLOGY

KENNETH D. CREMER, Ed.D., *Chair*
CHARLES R. COZZENS, D.Ed., *Coordinator*
of Graduate Studies

ASSOCIATE MEMBERS

SAMYA LOUZA, *Assistant Professor*
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JAMES N. YADON, *Professor*
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WILLIAM S. JANNA, *Professor*
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EDWARD H. PERRY, *Professor*
Ph.D. (1970), California Institute of Technology [1994].
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Ph.D. (1984), Iowa State University [1993].
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GLADIUS LEWIS, *Associate Professor*
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SAMUEL B. THOMASON, *Associate Professor*
Ph.D. (1979), North Carolina State University [1995].
STEVE SCESA, *Associate Professor*
Ph.D. (1954), University of California Berkeley [1996].
SAMUEL B. THOMASON, *Associate Professor*
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INDEPENDENT DEPARTMENT

AUDIOLOGY AND SPEECH PATHOLOGY

MAURICE I. MENDEL, Ph.D., *Chair*
DAVID J. WARK, Ph.D., *Coordinator of*
Graduate Studies

MEMBERS

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JOEL C. KAHANE, *Associate Professor*
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ALAN G. KAMHI, *Associate Professor*
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WALTER H. MANNING, *Professor*
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ROBERT F. ORLIKOFF, *Assistant Professor*
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CAROL S. SWINDELL, *Assistant Professor*
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M.A. (1976), Memphis State University [1991].
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DANIEL S. BEASLEY
Ph.D. (1970), University of Illinois [1991].
STEPHANIE BEASLEY
M.A. (1980), Memphis State University [1991].
NEAL S. BECKFORD
M.D. (1980), Howard University Medical School [1991].
WILLIAM BERRY
Ph.D. (1971), Purdue University [1991].
LARRY DUBERSTEIN
M.D. (1967), University of Cincinnati Medical School [1990].
LINDA P. HACKMEYER
M.A. (1972), Memphis State University [1990].
MICHAEL HEMPHILL
Ph.D. (1981), University of Iowa [1993].
WILLIAM HINKLE
Ph.D. (1971), Purdue University [1990].
VICKI HUSTON
M.A. (1977), University of Tennessee, Knoxville [1990].
KEVIN KAVANAGH
M.D. (1978), University of Iowa [1990].
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M.A. (1985), Memphis State University [1990].
DANIEL J. ORCHIK
Ph.D. (1973), Memphis State University [1990].
KAY HOWARD PUSAKULICH
M.A. (1979), Memphis State University [1990].
RUTH RIKE
M.A. (1963), Northwestern University [1990].
ANN WELCH
M.A. (1974), Memphis State University [1990].

1991-92 TENTATIVE CALENDAR

This calendar is tentative, and students should check the 1991-92 *Graduate Catalog* and the *Schedule of Classes* for possible changes or additions.

FALL SEMESTER 1991

AUGUST 21: Meeting of new members of the University faculty, 8:30 A.M. Meeting of entire University faculty, 10:30 A.M., followed by meetings of colleges and departments.

AUGUST 22: Faculty advising for Fall 1991 Registration.

AUGUST 23 and 26-28: FALL 1991 Regular Registration and Drop/Add. Fall detailed dates and times, see the *Schedule of Classes* for the Fall 1991 Semester.

AUGUST 29: Classes begin.

SEPTEMBER 2: Holiday: Labor Day.

SEPTEMBER 5: Last day to add or to register for Fall 1991 courses.

SEPTEMBER 25: Last day for removing Summer Session "Incomplete" grades.

OCTOBER 18: Last day for all students to drop courses.

Last day for all students to withdraw from the University.

NOVEMBER 11-14, 18-21, and 25-27: SPRING 1992 Priority Registration. For detailed dates and times, see the *Schedule of Classes* for the Spring 1992 Semester.

NOVEMBER 20: Last day for making application to the dean of the appropriate undergraduate college for degrees to be conferred in May, 1992.

NOVEMBER 28 - DECEMBER 1: Holiday: Thanksgiving.

DECEMBER 5: Classes end. (Regularly scheduled MWF morning classes will meet at corresponding times today.)

DECEMBER 6-12: Final examinations.

DECEMBER 14: Commencement.

SPRING SEMESTER 1992

JANUARY 8-10 and 12: SPRING 1992 Continuous Registration and Drop/Add. For detailed dates and times, see the *Schedule of Classes* for the Spring 1992 Semester.

JANUARY 10: Faculty advising.

JANUARY 13-16: SPRING 1992 Regular Registration and Drop/Add. For detailed dates and times, see the *Schedule of Classes* for the Spring 1992 Semester.

JANUARY 17: Classes begin.

JANUARY 20: Holiday: Martin Luther King's Birthday.

JANUARY 23: Last day to add or to register for Spring 1992 courses.

JANUARY 28: Last day for removing Fall "Incomplete" grades.

MARCH 6: Last day for all students to drop courses.

Last day for all students to withdraw from the University.

MARCH 8-15: Spring Break.

APRIL 6-9: SUMMER 1992 Priority Registration. For detailed dates and times, see the *Schedule of Classes* for the Summer 1992 Semester.

APRIL 8: Last day for making application to the dean of the appropriate undergraduate college for degrees to be conferred in August, 1992.

APRIL 13-16 and 20-23: FALL 1992 Priority Registration. For detailed dates and times, see the Fall 1992 *Schedule of Classes*.

APRIL 29: Classes end.

APRIL 30: Study Day.

MAY 1-7: Final examinations.

MAY 9: Commencement

FIRST SUMMER TERM 1992

MAY 21, 22, 24: SUMMER 1992 Continuous Registration. For detailed dates and times, see the Summer 1992 *Schedule of Classes*.

MAY 25: Faculty advising.

MAY 25-27: SUMMER 1992 Regular Registration and Drop/Add. For detailed dates and times, see the *Schedule of Classes* for the Summer 1992 Session.

MAY 28: Classes begin.

MAY 29: Last day to add or to register for First Term courses.

JUNE 5: Last day for all students to drop First Summer Term courses.

Last day for all First Summer Term students to withdraw from the University.

JUNE 23: Last day for removing Spring Semester "Incomplete" grades.

JUNE 22-25: SECOND SUMMER and FALL 1992 Continuous Registration and Drop/Add. For details, see the *Schedule of Classes* for the particular term.

JUNE 30: First Summer Term classes end.

JULY 1: First Summer Term exams.

SECOND SUMMER TERM 1992

JULY 6: SECOND SUMMER 1992 Regular Registration and Drop/Add. For detailed dates and times,

see the *Schedule of Classes* for the Summer 1992 Session.

JULY 7: Second Summer Term classes begin.

JULY 8: Last day to add or register for Second Summer Term courses

JULY 22: Last day for making application to the dean of the appropriate undergraduate college for degrees to be conferred in December, 1992.

Last day for all students to drop Second Summer Term courses.

Last day for all Second Summer Term students to withdraw from the University.

AUGUST 3-6: FALL 1992 Continuous Registration and Drop/Add. For details, see the Fall 1992 *Schedule of Classes*.

AUGUST 6: Second Summer Term classes end.

AUGUST 7: Second Summer Term exams.

AUGUST 9: Commencement.

EXTENDED SUMMER TERM 1992

MAY 25: Faculty advising.

MAY 25-27: SUMMER 1992 Regular Registration and Drop/Add. For detailed dates and times, see the *Schedule of Classes* for the Summer 1992 Session.

MAY 28: Classes begin.

MAY 29: Last day to add or to register for Extended Summer Term courses.

JUNE 12: Last day for all students to drop Extended Summer Term courses.

Last day for all Extended Summer Term students to withdraw from the University.

JUNE 23: Last day for removing Spring Semester "Incomplete" grades.

JULY 2-6: Holiday break: Independence Day.

JULY 6: SECOND SUMMER 1992 Continuous Registration and Drop/Add. For details, see the Summer 1992 *Schedule of Classes*.

AUGUST 3-6: FALL 1992 Continuous Registration and Drop/Add. For details, see the Fall 1992 *Schedule of Classes*.

AUGUST 6: Extended Summer Term classes end.

AUGUST 7: Extended Summer Term exams.

AUGUST 9: Commencement.

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OFFICE OF ADMISSIONS
Memphis, Tennessee 38152



**THE GRADUATE SCHOOL
APPLICATION PROCEDURE**
Please Read the Following Carefully

To be considered for admission to the university, you must complete the application for admission and submit the completed application with a \$5.00 *non-refundable* fee, unless previously paid, prior to the stated deadlines. Applications received after the stated deadlines will only be processed for conditional categories. To qualify for admission, the applicant must meet the admission requirements as outlined in the current MSU *Bulletin*.

THE ESTABLISHED APPLICATION DEADLINES FOR REGULAR GRADUATE ADMISSION ARE:

Fall Semester - August 1

Spring Semester - December 1

Summer Semester - May 1

Graduate Master

A Master's student is one who has met all admission requirements and has been formally admitted to a graduate program for the purpose of pursuing a master's degree.

1. A transcript of undergraduate and graduate credit must be sent **DIRECTLY** from each institution at which the credit was earned to the Admissions Office at Memphis State University. (If you received your undergraduate degree at Memphis State, this step is not necessary.) Personal copies of transcripts cannot be accepted as official documents. Documents submitted for Law School admission or Undergraduate admission cannot be used for Graduate admission.
2. Admission to most departments requires satisfactory scores of either the Miller Analogies Test (MAT) or the general test of the Graduate Record Examination (GRE). Test scores older than five years may not be accepted by any department. Applicants to the departments of Psychology, Geology, Biology, The Herff College of Engineering or the Fogelman College of Business and Economics should refer to departmental requirements listed below.

All test scores must be sent directly from the testing agency to the Admissions Office. The Miller Analogies Test may be taken at Memphis State University or any approved testing center. For information concerning the MAT, contact the Testing Center, (901) 678-2428. Applications for the GRE and GMAT may be obtained in the Graduate Admissions Office.

3. **DEPARTMENTAL REQUIREMENTS**

APPLICANTS FOR DOCTORAL PROGRAM IN PSYCHOLOGY:

Applicants for MS/PhD in Psychology and Counseling Psychology are accepted for Fall semester admission only. All applications and documents must be received by February 15. Applicants for the MS/PhD program must submit scores on the Graduate Record Examination general test. Additional information must be submitted to the appropriate departmental office, who should be contacted directly by the applicant for information and departmental requirements for admission.

APPLICANTS FOR MASTER'S LEVEL PROGRAMS IN PSYCHOLOGY:

For MS and MA program applicants, applications and documents must be received by July 1. Applicants for the MS and MA programs may submit either scores on the GRE general test or the Miller Analogies Test. All test scores must be sent directly from the testing agency to the Graduate Admissions Office. Additional information must be submitted to the appropriate departmental office, who should be contacted directly by the applicant for information and departmental requirements for admission.

APPLICANTS FOR THE HERFF COLLEGE OF ENGINEERING:

All applicants for the College must submit satisfactory scores on the Graduate Record Examination, general test.

APPLICANTS FOR BIOLOGY AND GEOLOGY:

All applicants for Biology and Geology must submit scores on the general test and the subject test in Biology and/or Geology of the Graduate Record Examination.

APPLICANTS FOR THE FOGELMAN COLLEGE OF BUSINESS AND ECONOMICS:

All applicants to the College are required to submit a satisfactory score on the Graduate Management Admission Test (formerly ATGSB). Inquiries relating to graduate study in the College should be referred to the Director of Graduate Studies, telephone (901) 678-2431

Doctoral

An Early Doctoral student is one who has been formally admitted to a graduate program at the doctoral level but who has *not* been advanced to candidacy for the doctorate.

Graduate Non-Degree

Graduate non-degree is a student level for students who hold a bachelor's or master's degree from an accredited college or university. A Graduate Non-Degree student may enroll in selected graduate courses but is not admitted to a graduate degree program.

Combination Senior

Combination senior is a student level for the undergraduate student at Memphis State University who is enrolled in courses which complete the undergraduate degree. The student must have a 3.25 quality point average. A Combination Senior is an undergraduate student who has approval to enroll in graduate courses but who is *not* admitted to a graduate degree program.

GUIDELINES FOR THE CLASSIFICATION OF STUDENTS FOR FEE PAYING PURPOSES

PARAGRAPH 1. INTENT. It is the intent that the public institutions of higher education in the State of Tennessee shall apply uniform rules, as described in these regulations and not otherwise, in determining whether students shall be classified "in-state" or "out-of-state" for fees and tuition purposes and for admission purposes.

PARAGRAPH 2. DEFINITIONS. Wherever used in these regulations:

- (1) "Public higher educational institution" shall mean a university or community college supported by appropriations made by the Legislature of this State.
- (2) "Residence" shall mean continuous physical presence and maintenance of a dwelling place within this State, provided that absence from the State for short periods of time shall not affect the establishment of a residence.
- (3) "Domicile" shall mean a person's true, fixed, and permanent home and place of habitation; it is the place where he or she intends to remain.
- (4) "Emancipated person" shall mean a person who has attained the age of eighteen years, and whose parents have entirely surrendered the right to the care, custody, and earnings of such person and who no longer are under any legal obligation to support or maintain such deemed "emancipated person".
- (5) "Parent" shall mean a person's father or mother; or if one parent has custody of an unemancipated person, the person having custody; or if there is guardian or legal custodian of an unemancipated person, then such guardian or legal custodian; provided, that there are not circumstances indicating that such guardianship or custodianship was created primarily for the purpose of conferring the status of an in-state student on such unemancipated person.
- (6) "Continuous enrollment" shall mean enrollment at a public higher educational institution or institution of this State as a full-time student, as such term is defined by the governing body of said public higher educational institution or institutions, for a normal academic year or years or the appropriate portion or portions thereof since the beginning of the period for which continuous enrollment is claimed. Such person need not enroll in summer sessions or other such inter-sessions beyond the normal academic year in order that his or her enrollment be deemed "continuous". Enrollment shall be deemed continuous notwithstanding lapses in enrollment occasioned solely by the scheduling of the commencement and/or termination of the academic years, or appropriate portion thereof, of the public higher educational institutions in which such person enrolls.

PARAGRAPH 3. RULES FOR DETERMINATION OF STATUS.

- (1) Every person having his or her domicile in this State shall be classified "in-state" for fee and tuition purposes and for admission purposes.
- (2) Every person not having his or her domicile in this State shall be classified "out-of-state" for said purposes.
- (3) The domicile of an unemancipated person is that of his or her parent.
- (4) The domicile of a married person shall be determined independent of the domicile of the spouse.

PARAGRAPH 4. OUT-OF-STATE STUDENTS WHO ARE NOT REQUIRED TO PAY OUT-OF-STATE TUITION.

- (1) An unemancipated, currently enrolled student shall be reclassified out-of-state should his or her parent, having theretofore been domiciled in the State, remove from the State. However, such student shall not be required to pay out-of-state tuition nor be treated as an out-of-state student for admission purposes so long as his or her enrollment at a public higher educational institution or institutions shall be continuous.
- (2) An unemancipated person whose parent is not domiciled in the State but is a member of the armed forces and stationed in this State or at Fort Campbell pursuant to military orders shall be classified out-of-state but shall not be required to pay out-of-state tuition. Such a person, while in continuous attendance toward the degree for which he or she is currently enrolled, shall not be required to pay out-of-state tuition if his or her parent thereafter is transferred on military orders.
- (3) A person whose domicile is in a county of another state lying immediately adjacent to Montgomery County, or whose place of residence is within thirty (30) miles of Austin Peay State University shall be classified out-of-state but shall not be required to pay out-of-state tuition at Austin Peay State University. Provided, however, that there be no teacher college or normal school within the non-resident's own state, of equal distance to said non-resident's bona fide place of residence.
- (4) Part-time students who are not domiciled in this State and are employed full-time in the State, or who are stationed at Fort Campbell pursuant to military orders, shall be classified out-of-state but shall not be required to pay out-of-state tuition. (Part-time students are those classified as such by the individual public higher educational institutions of this State).
- (5) Military personnel and their spouses stationed in the State of Tennessee who would be classified out-of-state in accordance with other provisions of these regulations will be classified out-of-state but shall not be required to pay out-of-state tuition. This provision shall not apply to military personnel and their spouses who are stationed in this State primarily for educational purposes.

PARAGRAPH 5. PRESUMPTION. Unless the contrary appears from clear and convincing evidence, it shall be presumed that an emancipated person does *not* acquire domicile in that State while enrolled as a full-time student at any *public or private* higher educational institution in this State, as such status is defined by such institution.

PARAGRAPH 6. EVIDENCE TO BE CONSIDERED FOR ESTABLISHMENT OF DOMICILE. If a person asserts that he or she has established domicile in this State he or she has the burden of proving that he or she has done so. Such a person is entitled to provide to the public higher educational institution by which he or she seeks to be classified or reclassified in-state, any and all evidence which he or she believes will sustain his or her burden of proof. Said institution will consider any and all evidence provided to it concerning such claim of domicile but will not treat any particular type or item of such evidence as conclusive evidence that domicile has or has not been established.

PARAGRAPH 7. APPEAL. The classification officer of each public higher educational institution shall be responsible for initially classifying students "in-state" or "out-of-state". Appropriate procedures shall be established by each such institution by which a student may appeal his or her initial classification.

PARAGRAPH 8. EFFECTIVE DATE FOR RECLASSIFICATION. If a student classified out-of-state applies for in-state classification and is subsequently so classified, his or her in-state classification shall be effective as of the date on which reclassification was sought. However, out-of-state tuition will be charged for any quarter or semester during which reclassification is sought and obtained unless application for reclassification is made to the admissions officer on or before the last day of registration of that quarter or semester.

PARAGRAPH 9. EFFECTIVE DATE. These regulations supersede all regulations concerning classification of persons for fees and tuition and admission purposes previously adopted by the State Board of Regents, and having been approved by the Governor, become effective May 1, 1975.

OFFICE OF ADMISSIONS Administration Building, Suite 215

General Information (901) 678-2101
After 4:30 PM & Saturday mornings (901) 678-2398

Graduate (901) 678-2911	Residency (901) 678-2344
International Students (901) 678-2911	(for out-of-state tuition)
Readmissions (901) 678-2674	Veterans Affairs (901) 678-2996

Limited medical services are available in the University Health Center. If you wish to take advantage of these services, a health record is necessary. This form may be obtained in the Health Center.

MEMPHIS STATE UNIVERSITY OFFERS EQUAL OPPORTUNITY TO ALL PERSONS WITHOUT REGARD TO RACE, RELIGION, SEX, CREED, COLOR, NATIONAL ORIGIN, OR HANDICAP.



MEMPHIS STATE UNIVERSITY

Memphis, Tennessee 38152

APPLICATION FOR GRADUATE ADMISSION

APPLICATION MUST COMPLETE EVERY ITEM ON THIS FORM; SIGN AND DATE THE APPLICATION: AND RETURN WITH A \$5.00 NON-REFUNDABLE FEE UNLESS PREVIOUSLY PAID.

DO NOT WRITE IN THIS SPACE

Application
Fee Receipt

Social Security No. _____ Date of Birth _____
Mo. Day Year

Name _____
Last Suffix (Jr., III, etc.)

First Middle

If your name on your college transcript is different from above, please print that name below.

Address _____
Street Number and Name

City _____ County _____

State _____ Zip Code _____ Area Code _____ Telephone # _____

Term applying for: (check only one) ☐ Fall ☐ Spring ☐ Summer Year _____

Please indicate below the Admission Test you have taken or plan to take.

GRE General _____ Date _____ MAT _____ Date _____
Subject _____ Date _____ GMAT _____ Date _____

Do you have a professional teacher's certificate? Yes _____ No _____ Grade Level _____

List the Certificate Number _____ (Do not list temporary number.)

List ALL Colleges attended including Memphis State.

Name of College or University	City & State	Dates of Attendance (Term/Year)	Did you graduate?	If yes, Degree earned & date
		____ - ____ (Term/Year) (Term/Year)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
		____ - ____ (Term/Year) (Term/Year)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
		____ - ____ (Term/Year) (Term/Year)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
		____ - ____ (Term/Year) (Term/Year)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
		____ - ____ (Term/Year) (Term/Year)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
		____ - ____ (Term/Year) (Term/Year)	<input type="checkbox"/> Yes <input type="checkbox"/> No	

If you have not yet graduated, what is the proposed date of your graduation? _____

Have you previously applied to Memphis State University Graduate School? ☐ Yes ☐ No

If yes, indicate term and year _____
Term/Year

Have you previously attended Memphis State University Graduate School? ☐ Yes ☐ No

If yes, indicate term and year _____
Term/Year

Do you plan to earn a degree at Memphis State University? ☐ Yes ☐ No

If Yes:

1. Master's ☐ Doctoral ☐ Education Specialist ☐
2. In which department do you plan to earn a degree? _____
3. What will be your major within that department? _____

If No:

Do you plan to take courses in the College of Education? ☐ Yes ☐ No

Are you applying for the admission category combination senior? ☐ Yes ☐ No

DO NOT WRITE IN THIS
SPACE SCREEN 1

01 _____ DOB

13 _____ TR

14 _____ YR

22 _____ COL

23 _____ COL

24 _____ COL

25 _____ COL

26 _____ COL

27 _____ COL

28 _____ COL

29 _____ LEV

30 _____ TYPE

31 _____ RES

32 _____ AREA

33 _____ ATT

34 _____ MAJ

35 _____ AOI

MEMPHIS STATE UNIVERSITY MAIN CAMPUS

- 1 Information Center
- 2 Fogelman College of Business and Economics—Classrooms
- 3 Cecil C. Humphreys School of Law
- 4 Theatre and Communications Arts Bldg
- 5 Music Bldg
- 6 Herff College of Engineering
- 6E Engineering Technology
- 6T Communication and Fine Arts Bldg—University Gallery
- 7 Richardson Towers Residence Hall
- 8 Panhellenic Bldg
- 9 Psychology Bldg
- 10 Dunn Mathematics and Foreign Languages Bldg
- 11 Smith Residence Hall
- 12 Rawls Residence Hall
- 13 Meeman Journalism Bldg
- 14 Heating & Power Plant
- 15 Physical Plant & Planning
- 16 Health Center
- 17 McCord Residence Hall
- 18 Browning Residence Hall
- 19 Robison Residence Hall
- 20 Hayden Residence Hall
- 21 Manning Hall
- 22 Jones Hall
- 23 Art Building
- 24 West Residence Hall
- 25 Mynders Residence Hall
- 26 Administration Building
- 27 Scates Hall
- 28 Field House
- 29 Old Gymnasium
- 30 Johnson Hall
- 31 Brister Library Tower
- 32 Brister Library
- 33 Mitchell Hall
- 34 University Center
- 35 Navy ROTC Bldg
- 36 Army ROTC Bldg
- 37 Special Education Bldg
- 38 Army ROTC Bldg
- 39 Campus School
- 40 Life Sciences Bldg
- 41 Smith Chemistry Bldg
- 42 Ellington Biology Bldg
- 43 Clement Humanities Bldg
- 44 Patterson English Bldg
- 45 South Residence Hall
- 46 Newport Residence Hall
- 47 Lambda Chi Alpha
- 48 Athletic Office Bldg
- 49 Alumni Center
- 50 Physical Education Bldg
- 51 Printing Services
- 52 Center for Earthquake Research and Information
- 53 Fogelman College of Business and Economics—Offices
- 54 Fogelman Executive Center

- Barth House (Episcopalian) - 1R
 Christian Student Center - 2R
 Westminster House (Presbyterian) - 3R
 Wesley House (Methodist) - 4R
 Baptist Student Union - 5R
 Jewish Student Union - 6R
 Newman Foundation (Catholic) - 7R

SOUTH CAMPUS

- 1 Suzuki Program
- 2 Physics & Biology Research
- 3 Ecological Research Center
- 4 WKNO-TV
- 5 Opera Memphis
- 6 Central Receiving
- 7 Speech & Hearing Center (satellite)
- 8 Storage
- 9 Married Student Housing
- 10 Pool
- 11 Nat. Bunting Baseball Field
- 12 Athletic Dressing Facilities
- 13 Practice Fields

Locations not shown on map:
 Child Development Center
 Chucalissa
 Speech and Hearing Center
 MSU Center at Jackson

